

OCTOBER, 1947

CHEMICAL PROCESSING

PREVIEW

The Magazine of
PROCESSING, ITS CONTROL AND DEVELOPMENT

In this issue

113 Articles

NEW SOLUTIONS OF PLANT PROBLEMS
6 actual "Installation-type" articles
of "how it was done better".

MATERIALS . . . 14 reports on develop-
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better processing.

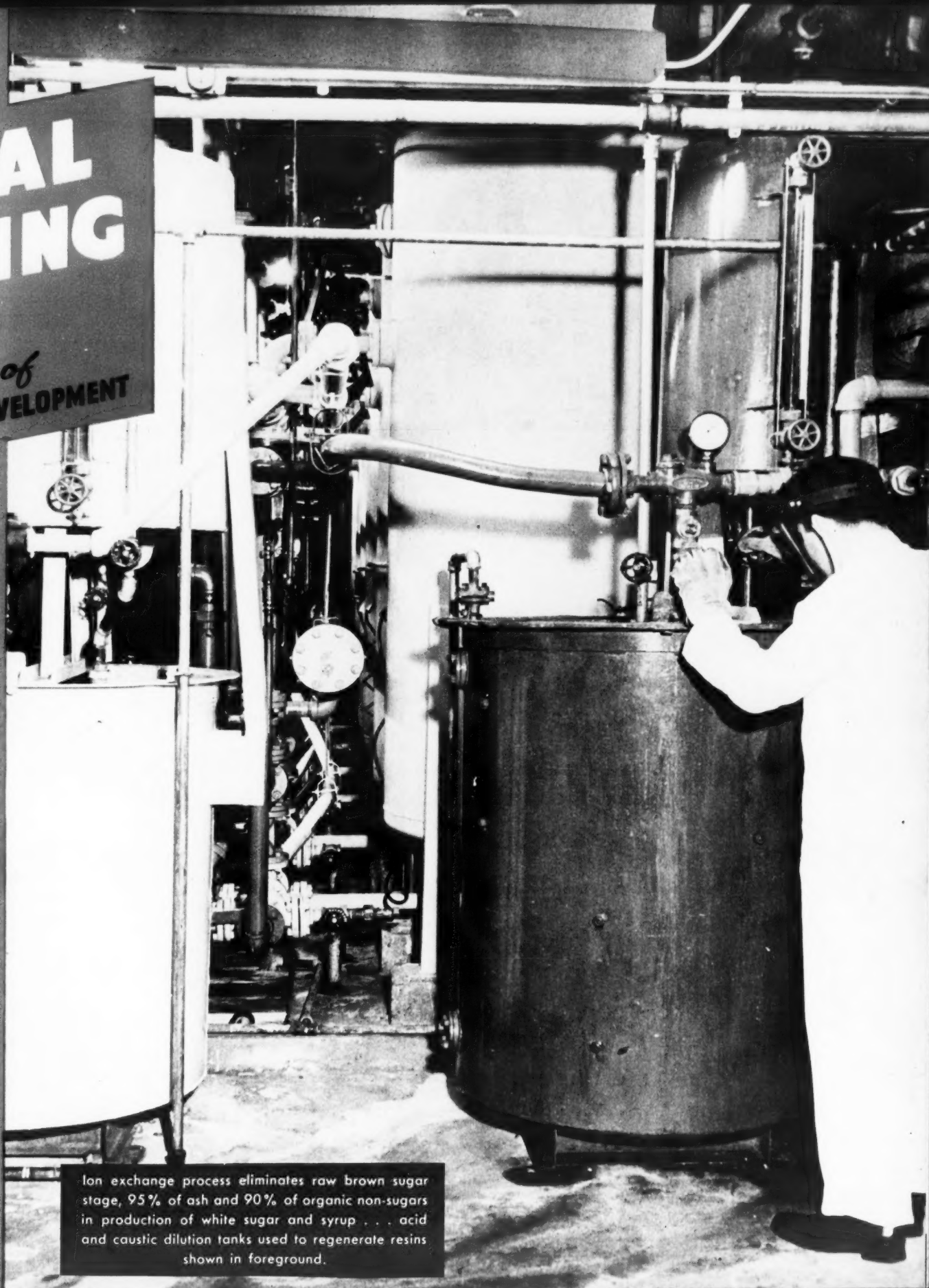
MATERIAL HANDLING . . . 10 ex-
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IDEAS . . . 4 ideas gleaned from this or
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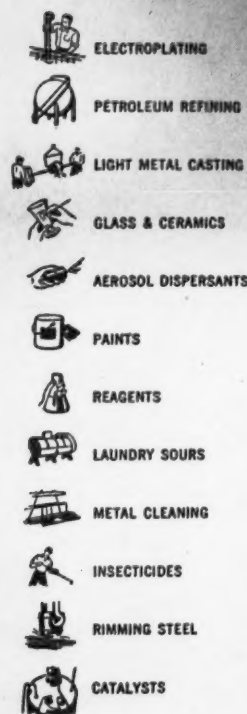
plus scores of new literature and
new product reports of top interest to
men who must operate plants.



Ion exchange process eliminates raw brown sugar stage, 95% of ash and 90% of organic non-sugars in production of white sugar and syrup . . . acid and caustic dilution tanks used to regenerate resins shown in foreground.

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Strontium Fluoride
Zinc Fluoride

3 Double Fluorides

Potassium Chromium Fluoride
Potassium Ferric Fluoride
Potassium Titanium Fluoride

4 Non-Metal Fluorides

Boron Fluoride—Diethyl Ether Complex
Sulfur Hexafluoride

5 Acid Fluorides

Ammonium Bifluoride
Potassium Bifluoride
Potassium Polyacid Fluoride "50"
Sodium Bifluoride

6 Alkali Fluoborates

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Potassium Fluoborate
Sodium Fluoborate

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Cobalt Fluoborate
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Lead Fluoborate
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Mercuric Fluoborate
Nickel Fluoborate
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The above products are available either in commercial or experimental quantities. For information contact General Chemical Fluorine Division, 40 Rector Street, New York 6, N. Y.

"That's Interesting"

Washing Clothes by Sound Waves Project of British Launderers' Research Association

Laundering clothes by sound waves has been tried out successfully by British Scientists. The basis of the plan is that dirt particles are shaken off fabrics by "supersonic frequencies."

The wave lengths are of the same nature as sound waves but are too high pitched for the human ear to detect. The chemical action of soap generally helps to break down the minute charges of electricity, which hold dust in fabric. However, the most careful rinsing does not always remove entirely the moistened dirt and this dries in the fabric. Supersonic frequencies, on the other hand, emulsify the dirt in the detergent solution made by the soap, and so keep them clear of the fabric.

By this new method, clothes are cleaned more effectively and with less boiling. Test pieces of soiled fabric have been vibrated clean in ten minutes. In the supersonic method articles are extended rather than jumbled together as in the conventional drum washer. (Summarized from report FS246 British Information Service. 30 Rockefeller Plaza, New York 20, N. Y.)

Oil Technique Cuts Time Required for Dismounting Bearings

A more economical and time-saving method of removing large anti-friction bearings from machines in minutes instead of hours is being applied by an increasing number of manufacturers, according to Dr. Haakon Styri, director of research for SKF Industries, Inc.

By pressuring oil from a hand-operated hydraulic pump between the bore of the bearing and the shaft on which it is mounted, Dr. Styri pointed out, the inner ring expands and floats on the oil film, enabling the operator to remove the bearing with greater ease and less time. The method, introduced to industry by the ball and roller bearing firm, is also successful for coupling two shafts together.

The application of oil at 7000 to 8000 pounds per square inch reduces dismounting time to 10 or 15 minutes as compared with several hours required by former methods involving the use of pullers and hydraulic jacks. (SKF Industries, Philadelphia, Pa.)

Field Welding of Refinery Pipe Cuts Cost; Rewelding Reduced to Record Low of 1%

An article in the Kellogggram — issue 4 — 1947 series — points out that piping represents one third of all refinery construction costs. Kellogg's field fabrication for piping has practically moved the conventional fabrication shop to the field. This has cut freight charges and eliminated delivery time uncertainties. Rewelding has been reduced to a record low point. Field welding is now of such quality that the normal rewelding required to put initial passes in X-ray test condition is at a record low point of less than one per cent. (M. W. Kellogg Co., 225 B'way, New York)

Self-Insulating Durez Phenolic Plastic Used in New Safety Wall Sockets

Safety-type wall sockets are molded of a self-insulating Durez phenolic plastic by Breyer Molding Co. for Bell Electric Co.

Design prevents possibility of shock by improper insertion. Dirt is also prevented from entering. Plates, also Durez, cover the holes when the socket is not in use. These plates are pivoted at their centers and are held in place by spring tension. When connection is to be made, the prongs of the plug are placed in the holes in the plate. The plug is then turned clockwise 90 degrees. This brings the holes in the plate in alignment with the holes in the socket proper. The prongs can then be pushed all the way in and the contact is made. Durez Plastics News — North Tonawanda, N. Y.)

"That's Interesting"

Device Warns When Thunder Storm is 5 Miles Away

A thunderstorm detector has been developed by North American Philips Co., Inc., 100 East 42nd St., New York 17, N. Y. Originally designed for use in African gold mines to prevent accidental setting-off of explosives. The device can be adjusted to give a warning when a thunderstorm is five, ten or twenty miles away.

Hearings Held on New Insecticide Act Rules

A hearing was held last August 25th by the United States Department of Agriculture at which rules and regulations necessary for the administration and enforcement of the new Federal Insecticide, Fungicide and Rodenticide Act were considered.

The new act replaces the Federal Insecticide Act of 1910 and regulates the marketing of insecticides, fungicides, rodenticides, herbicides and devices. A provision which requires that all economic poisons covered by the law be registered with the Department will give added protection to users of such materials. The act's provisions for devices for pest control became effective June 25, 1947. Its provisions will not become fully effective on rodenticides and herbicides until December 25, 1947 and on insecticides and fungicides June 25, 1948. All these products must be registered by such dates.

"Cannon" Shoots Holes in Steel Rails

Ford Motor Company railroad workers who tend the 135 miles of track in the Rouge plant are equipped with a "cannon" that will shoot holes in steel rails. Called a velocity powerrail punch by the Mine Safety Appliance Company which manufactures it, this 45-pound portable industrial firearm is loaded like an old smooth bore rifle. The cartridge is placed behind a punch of desired diameter, the firing pin is attached and the "cannon" fired by a tap with a light hammer.

The explosive force drives the punch through the steel rail, leaving a clean, perfectly round hole. This eliminates the time consuming job of drilling rails when laying track.

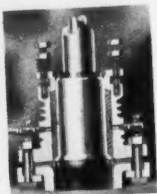
Number of Business Firms

The Department of Commerce reports the number of business firms at 3,700,000 — a new high. This is 300,000 above the pre-war high of Sept. 1941.

(Continued on third cover)

For more information on product at right, specify CP 2736 . . . see information request blank between pages 2-3.

Sturdy spiral bevel gear drives, motor driven, make vigorous agitation possible.



High-duty stuffing box seals against corrosive fumes or air within reactor, or air leakage from outside.

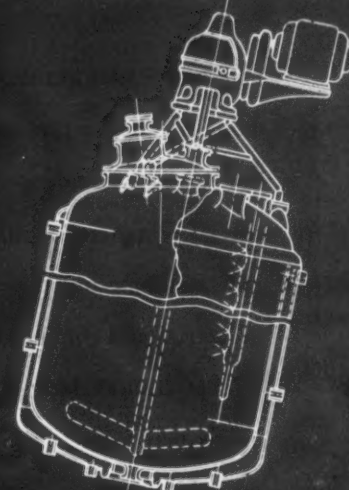
With inside diameters of 42", 48", 60", 66" and 78" plus varying straight depths, 30 standards are available and in three alternative internal pressures, 50, 75 and 100 PSI. Standard jacket pressure, 90 PSI.

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Impeller agitators—re-treating blade type—for maximum agitation up to relatively high viscosities.



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Study the "R" Series features shown above . . . then let's get together to see how we may solve your problem to your advantage.

Where "R" Series are Especially Advantageous

Because gasket exposure to the product is practically eliminated by "R" Series design, these units are particularly valuable for such services as—

Polymerizations which build up rapidly on any gasket material.

Process operations, especially in the field of biologicals and antibiotics, where complete sterility is desired.

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Nitrogen Tetroxide to American industry. The

special properties of this versatile chemical

indicate numerous potential uses in a variety of industrial and commercial fields.

The physical data in the book offered below may suggest many other uses. ✓

Suggested Uses:



In the development of new products for Solvents, Detergents, Resins, Plastics, etc.



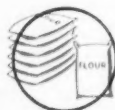
In recovery of Metals from Complex Ores.



Preparation of Oxidized Derivatives of Cellulose. Catalyst in Oxidation Reactions, i.e. Benzene to Phenol.



As chemical raw material for manufacture of Liquid Explosives.



In Flour Bleaching.



In nitrating organic compounds. As a liquid or vapor phase Nitrating Agent. For jet and rocket fuels.

Physical Properties: Formula: N_2O_4
Appearance: Heavy brown liquid at ordinary temperatures, containing about 30% nitrogen and 70% oxygen. Available in very pure form containing 0.1% water or less and only a trace of lower nitrogen oxides.

Molecular Weight: 92.02
Boiling Point: 21°C
Freezing Point: -11.3°C
Critical Temperature: 158°C
Critical Pressure: 99 atm.
Density of Liquid: (Water = 1 at 4°C)
(under its own vapor pressure): 1.49 at 0°C
Density of Gas: 3.3 gm./liter 21°C , 1 atm.
Specific Gravity of Gas: 1 atm. 21°C (Air = 1 at 21°C , 1 atm.) = 2.75

Chemical Properties:
Mixed anhydride of nitric and nitrous acids, resembles ozone and hydrogen peroxide in many of its reactions.

Extensive Technical Data Sent on Request

Extensive technical data regarding Nitrogen Tetroxide is set forth in "The Reactions of Nitrogen Tetroxide with Organic Compounds." For your free copy, and for other technical information, write or telephone to The Solvay Process Company, Product Development Section, 40 Rector Street, New York 6, N. Y.

THE SOLVAY PROCESS COMPANY

Product Development Section

40 RECTOR STREET, NEW YORK 6, N. Y.



When inquiring specify CP 2737 . . . see information request blank, pgs. 2-3

CHEMICAL PROCESSING PREVIEW

The Magazine of
Processing, Its Control and Development
VOL. 10 OCTOBER, 1947 NO. 10

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HIGHLIGHTS

These articles have been selected by the Editors as having unusual interest

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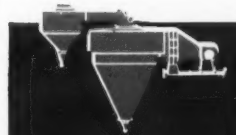
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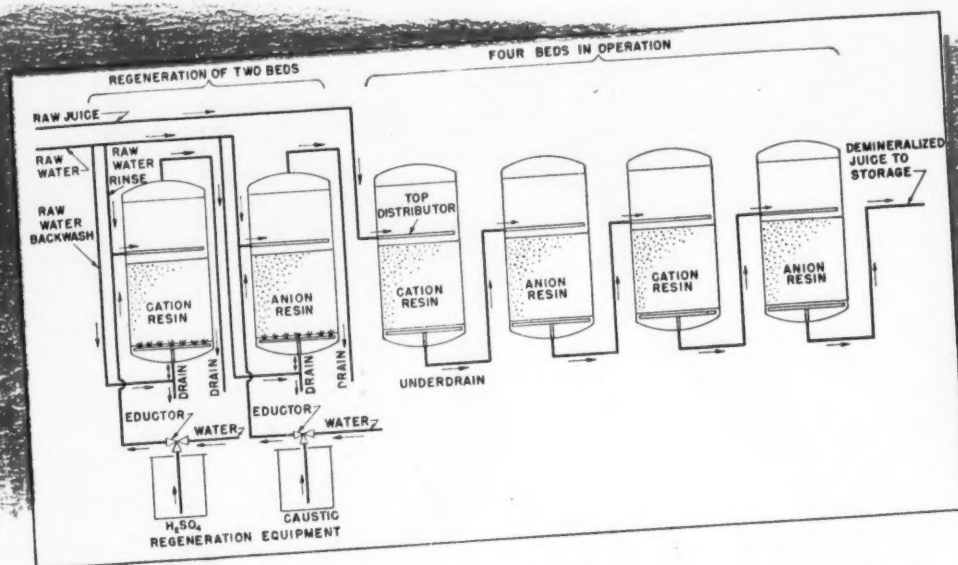


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DIVISION OF WHITING CORPORATION
SPRAY DRYER DEPARTMENT, 221-L N. La Salle St., Chicago 1, Ill.
Export Department: 30 Church Street, New York 7, N. Y.

When inquiring specify CP 2738 . . . see information request blank, pgs. 2-3

Ion Exchange Production of Sugar from Raw Juices without Brown Sugar Stage

New Solutions
OF PLANT PROBLEMS



Flow Diagram of 6-bed ion exchange unit

High grade table syrups and liquid sugars produced from any sugar-containing juices with fewer operations

PROBLEM — Cane sugar refinery sought to increase sugar yields, decrease production time, and simplify overall procedures used in the production of white sugars and edible table syrup.

SOLUTION — The ion-exchange process is an entirely new approach to this old problem. Raw cane sugar juices, and most sugar syrups, consist essentially of sucrose dissolved in water along with a number of impurities. Most of these impurities are salts or acids which ionize in solution. Sucrose, a carbohydrate, does not ionize. Hence, when these juices are allowed to flow over beds of ion-exchange resins, the sucrose passes through unaffected while the ionized impurities react and combine with the resins.

From the resultant solution, which consists essentially of sugar and water, it is comparatively easy to crystallize out the desired white sugar. In conventional methods, sugar is crystallized out of a solution which contains undesirable solids. Inevitably, some of these impurities crystallize out with the sugar. The result is raw brown sugar which must be remelted and recrystallized several times before white crystals are obtained.

The equipment of the pilot plant consists of juice coolers and equipment for either filtering or clarifying the ion-exchange juice. The ion-exchange plant consists of four pairs of beds, together with the necessary pumps, tanks, regeneration equipment and instruments. Included with each pair of beds is a cation and an anion unit through which the juice passes successively. Raw juice can enter any cation, and sweet water or effluent can be removed from any anion unit.

Suspended particles and excessive dirt introduced into the juice during the extrusion or extraction were removed mechanically either before or after cooling the juice to a temperature preferably around 20 degrees C. but before the juice is passed into the ion exchange units. The juice at a temperature of 20 degrees C. to 22 degrees C. is passed through the cation and anion units operated in parallel or in series.

The cooled juice is passed through the ion exchangers as rapidly as possible to minimize inversion and obtain maximum output from the ion exchange equipment.

The starting-up operation in which the anion effluent increases from 0 to 5 degrees Brix is termed "sweetening on". The water in the bed at the start of the juice pur-

ification is pushed out of the beds and about 75% of it is demineralized water free of sugar. This water is saved and used in the operation of the ion exchange plant. As the flow of juice continues, the effluent increases in Brix until the sugar solution is coming through at practically its original Brix, less amount of non-sugar solids removed.

Usually the sugar containing effluent between 0 and 1° Brix is sewerred, that between 1° and 50° is recovered and returned to the diffusion battery, while the sugar containing solution above 5° Brix is treated juice.

The flow of juice through the beds is continued as long as the desired non-sugar removal is attained. At this point the flow of juice is stopped and water is introduced into the first cation exchanger to remove the juice from the beds. The operation, termed "sweetening off", is done in series through the cation and anion units until the Brix drops to 5°. The effluent between 5° and 1° is recovered as water and sent to the diffusion battery. Below 1° Brix it is sewerred. After "sweetening off" the units are ready for regeneration.

RESULTS — Operations on cane and various sugar-containing fluids have produced these results: (1) Production of white sugar of consumption quality directly from raw juices, without the usual raw brown sugar stage; (2) Sucrose recoveries of 95-96% without Steffenizing the molasses; (3) Elimination of 95 to 96% of the ash and 90% of the organic non-sugars before any sugar is crystallized from the juice; (4) Because of advantages cited in item 3, there is increased evaporator efficiency and decreased costs for scale removal; (5) Production of a light-colored to water-white juice, substantially free from lime salts and colloids; (6) Production of sugars that are 96 to 98% sugars before clarification; (7) Production of high grade table syrups and liquid sugars from any sugar-containing juices.

AMERICAN CYANAMID CO., (Ion Exchange Products Dept.), Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y.

When inquiring specify CP 2739 — see handy form pages 2-3

Pump Crystals with Minimum Breakage In Modern Ammonium Sulphate Plant

Controlled rate of flow maintained through crystallizer tank which, in turn, controls crystal size

PROBLEM — A chemical plant desired to achieve uniformity of size in producing ammonium sulphate crystals. Also, the crystals, after centrifuging, had to be free from adhering acid.

This is a part of the recovery of ammonia as ammonium sulphate by scrubbing manufactured gas with sulfuric acid of proper concentration.

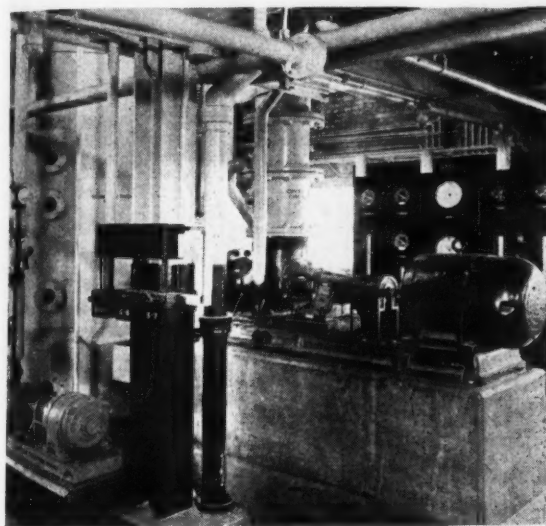
SOLUTION — The modern crystallizer process is now

being adopted in many plants and is superseding the "Saturator" or one-chamber process. Generally, and as cited here, the crystallizer is the heart of such modern plants. The crystallizer depends upon a large volume, low head circulating pump to maintain a controlled rate of flow through the crystallizer tank, which in turn controls the crystal size. It is important to handle these crystals in suspension in a pump that avoids breakages. This new process requires more pumps than the "Sat-

CHEMICAL PROCESSING Preview

urator" process. However, the power required to move the gas through the system is less, as there is no "head" of acid through which gas must be forced.

The circulating pump in the installation shown here is of the elbow propeller type. These "Worthite" pumps have been built for capacities up to 15,000 gpm., with the discharge connection fitting into the piping in place of an elbow. The extra flow capacity may be regulated by a butterfly, or throttle valve, or by variable speed driver. The variable speed arrangement is preferred, as



Crystallizer process pump installation in modern ammonium sulphate plant

this avoids churning through the valve. A steam turbine is an excellent driver for this type of installation.

The slurry pump which removes the crystals from the bottom of the crystallizer and discharges into the filter-dryer unit corresponds to the "Saturator" unloading pump in the older process. The required capacity is less as a smaller volume of liquor is drawn off with the crystals. This makes for a more difficult pumping job, but the pump handles the crystals without breakage. Installed in the first crystallizer plant in this country, the pump is reported to require total maintenance of about \$15 per year.

Included among the pumps used in this installation is a small one which returns filtrate from the filter-dryer unit back to the feed hopper.

All of these "Worthite" pumps are equipped with independent low-pressure clear water seals on stuffing boxes. By proper proportioning of the seal water pressure and the gland, no harmful dilution is experienced, and the packing gives excellent service.

No acid or sulphate can leak out of the stuffing box past the properly operated water seals.

RESULTS — Crystals are unbroken, uniform and dustless. They are superior to crystals produced in "Saturators" and are therefore competitive with all synthetic and imported sulphate.

Maintenance costs are low. The pumps seem to be practically unaffected by corrosion of the weak, warm sulphuric acid, or by the abrasive action of the crystals in suspension, and provide units that are very well suited for this service.

WORTHINGTON PUMP AND MACHINERY CORP., Dept. CP, Harrison, N. J.

When inquiring specify CP 2740 — see handy form pages 2-3

OCTOBER, 1947

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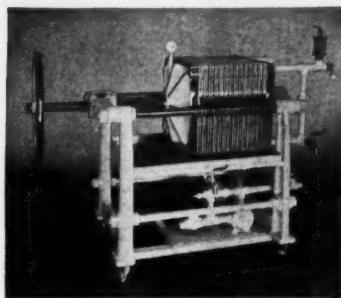
One of the Big 3 in Electric Power Equipment — Biggest of All in Range of Industrial Products



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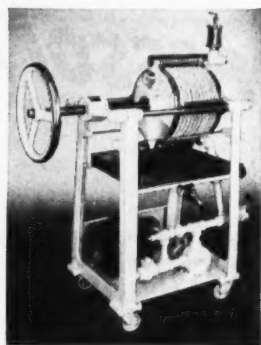


MODEL EU UTILITY FILTER

The only specially designed unit for any filtering requirement from coarse prefiltration to germproof and ultra filtration. Sizes holding from 10 to 100 filtering surfaces. See catalog 15.

MODEL EW FILTER

An Ertel unit holding 6 to 50 Ertel asbestos filter disks, with capacities from 5 to 20 gpm. Has typical Ertel single hand wheel designed for effortless closing. Ertel engineers will be glad to recommend the correct type and size for any particular problems.



WRITE FOR ILLUSTRATED CATALOG 15



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ENGINEERING**
CORPORATION
KINGSTON NEW YORK

New York City Sales Office: 40 West 48th Street, New York 19, N. Y.

ASBESTOS FILTER SHEETS • ASBESTOS SHEET FILTERS
BOTTLE FILLERS • PORTABLE MIXERS • PLASTIC PUMPS

When inquiring specify CP 2742 — see handy form pages 2-3

New Solutions OF PLANT PROBLEMS

Vacuum Tablet Compression Stops Clouding Of Camphor Cakes

Press operates under vacuum; method suitable for chemicals, porcelains, sintered carbides

PROBLEM — A convincing example of the manner in which trapped air complicates many tablet compressing operations is found the case of a company compressing a synthetic camphor into cakes. Compressing at atmosphere by machine produced a cloudy tablet. In contrast, in the past tablets made in the orient on hand presses were clear, as the slow hand operation gave a sufficient interval for the air to escape.

SOLUTION — To overcome such difficulties of atmospheric compressing a new machine and technique have been developed. The compressing is done under vacuum pressures which are varied to meet conditions. The new Stokes RV-4 press applies a maximum of 20 tons pressure from above and below. It has a die fill of 2 3/4 inches and will produce pieces up to 3 inches in diameter.

Pressure from above is exerted by means of an adjustable eccentric crank and on lower punch by a cam action. A vacuum chamber surrounds the die table, the punches and the feeding device. The feed hopper, with vacuum cover, is attached to the top of the vacuum chamber and a receptacle under vacuum receives the finished pieces at the side of the main vacuum chamber. Special stuffing boxes seal the upper and lower plungers where they enter the chamber.

In other respects this RV-4 press is similar to the Stokes R-4 which is in service in many plants. It utilizes standard punches and dies and other standard equipment and movements. The punches and dies are removable through the door of the vacuum chamber. The parts receptacle is large enough to hold all pieces produced from one full charge of the hopper. A vacuum pump can be supplied.

A number of these presses are in actual service. The press in the company's laboratory is constantly making tests on various materials under different conditions and at vacuums to within a few mm. of absolute pressure.

RESULTS — The company cited here is now compressing synthetic camphor in large tablet form with no clouding on these presses at a rate of 40-50 per minute.

The elimination of air produces pieces which ordinarily laminate due to air cracks. Material feeds more freely. Generally less depth of fill is required because of increased density of loose powders. Conversely, thicker pieces can usually be produced with a given depth of fill. Press speeds can be stepped up. Savings in material costs can sometimes be made by reducing the quantity of the binder. Also, vacuum pressing does not require such a high degree of uniformity in granulations.

There being no air in the chamber, no puffing can occur as the upper punch enters the die. There is little or no loss in material, and no soft spots occur at the edge of the piece. Operation is cleaner, with less dispersion of fine dust and resulting wear on the machine parts.

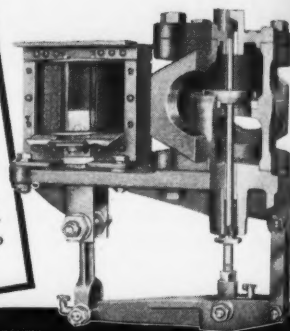
To cite an example as found in compressing ceramic powder: pressing speed was increased from 10 tablets per minute at atmospheric pressure to 40 per minute under vacuum. Tablets were denser, heavier and free from laminations which occurred frequently at atmosphere.

F. J. STOKES MACHINE CO., Dept. CP, Philadelphia, Pa.

When inquiring specify CP 2743 — see handy form pages 2-3

Match it against
your needs

- Provides full flow instantly
- Direct acting—no pilot valve
- For differential pressures up to 150 lbs.
- For temperatures up to 365° F.



NEW Automatic Valve

Brings new advances — Serves new uses

Now you can get a dependable, instant-opening automatic valve for practically all liquid level or flow control needs. This new Johnson Valve combines all the basic advantages of a direct-acting solenoid valve with the ability to operate under high differential pressures—up to 150 lbs. in some sizes. Its immediate response eliminates any time lag, or wiredrawing of valve or seat. The single seat construction dispenses with auxiliary pilot valves, minimizes danger of clogging. Can be used with hot and cold water, steam, oil, and other process liquids.

New bulletin shows wide scope of the Johnson Solenoid Valve; ask for copy



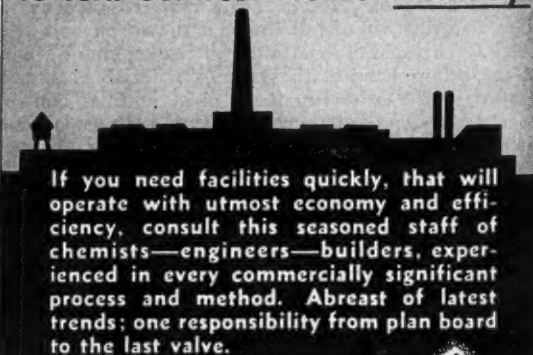
The Johnson Corporation

826 WOOD ST., THREE RIVERS, MICH.

When inquiring specify CP 2744 — see handy form pages 2-3

CHEMICAL PROCESS PLANTS

**Designed, Engineered, Constructed, Equipped
To Turn Out Your Product Profitably!**



If you need facilities quickly, that will operate with utmost economy and efficiency, consult this seasoned staff of chemists—engineers—builders, experienced in every commercially significant process and method. Abreast of latest trends; one responsibility from plan board to the last valve.

Investigate the benefits of handling your next plant project or equipment purchase through this established firm.



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ENGINEERS • CONSTRUCTORS • MANUFACTURERS
for the CHEMICAL, PETROLEUM, GAS & POWER industries

Offices in Key Cities Coast to Coast

Consult Sweets Files, Chemical Engineering Catalog, Refinery Catalog, ASH & VE Guide for full information.

When inquiring specify CP 2745 — see handy form pages 2-3

Centralized System Lubricates 46 Rubber Mills at Savings of \$1800 a Month

243 bearings and vital points serviced at regular intervals automatically; lubricating crew cut from 8 to only 2 men

PROBLEM — Rubber mill lubricated its 46 rubber mills with heavy cylinder oil through sight-feed cups. Performed manually, this work took eight oilers and cost \$1400 a month. Lubricant costs were as high as 24c per mill per 8 hr shift.

SOLUTION — A centralized lubrication system was installed. These three automatic motor driven systems are time clock controlled and feed cylinder oil to 243 points of lubrication. One system is employed to serve the roll neck bearings on 17 rubber mills, two cracker mills, and five rubber washing mills for a total of 94 points of lubrication. A second system serves 8 rubber mills, 5 cracker mills and 42 lineshaft bearings for a total of 94 points of lubrication. The third system 5 rubber mills, 5 cracker mills, plus 13 lineshaft bearings for a total of 53 points of lubrication.

The system is basically a positive mechanical method of delivering oil and grease in exact measured quantities and as often as desired. It consists of a central pumping unit, two main supply lines and a dual measuring line for each bearing. The selection of the manually operated system or the automatic system depends on the frequency of bearing lubrication that is necessary.

With the positive accurate control over the amount of lubricant delivered to each bearing combined with the motor driven automatic central station, this large rubber mill installation assures all bearings receiving unflinching lubrication at regular intervals, and no bearing is missed. The frequency of the operation is easily varied to suit the requirements.

There is a piston displacement valve for each bearing or point of lubrication that is entirely hydraulic in operation, contains no springs, or check valves. These displacement valves distribute any type of lubricant that can be pumped through the supply lines. Each valve is fully adjustable for quantity of lubricant delivered and has but two moving parts. Each valve is equipped with a tell-tale indicator.

After operating this centralized system for a period of months, repair and maintenance costs were much lower. Machines being put out of service because of lubrication troubles were no longer a problem. Heating of bearings, previously experienced, was also eliminated.

RESULTS — Two outstanding economies were almost immediately apparent, one being the large saving in labor and the other a substantial reduction in lubricant consumption. Where eight oilers were formerly employed, only two were now required. This provided a labor saving of approximately \$1000 per month.

Previous lubricant costs were 24c per mill per 8 hour shift. After installing the centralized system and employing a high grade soft grease, the cost dropped to 2c per mill per 8 hour shift. On the basis of 26 working days per month, the savings amounted to nearly \$800 per month.

THE FARVAL CORP., Dept. CP, Cleveland 4, Ohio.

When inquiring specify CP 2746 — see handy form pages 2-3

OCTOBER, 1947



**A
STAINLESS STEEL
HEX HEAD CAP SCREW**

AND — it's just one of over 1,000,000 Type 304 and Type 316 STAINLESS steel cap screws we carry ready for immediate delivery. Available in all lengths, coarse and fine threads, in diameters ranging from 1/4" to 1" inclusive. Available too, in popular sizes in Types 309; 317; 321 and 347. Also, we carry complete stocks of wood screws, machine screws, nuts, bolts, washers, cotter pins, sheet metal screws — in fact, STAINLESS fastenings of all kinds — all sizes — and in all standard analyses. Special items, to your specifications, can be produced promptly. Our twenty years of experience as manufacturers of STAINLESS fastenings is always at your service. Write today for a copy of our catalog. ANTI-CORROSIVE Metal Products Co., Inc., 52 River Road, Castleton-on-Hudson, New York.

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CASTLETON-ON-HUDSON, NEW YORK

When inquiring specify CP 2747 . . . see information request blank, pgs. 2-3

Power Engineers Agree: It's the GUTS that make a GOOD BOILER



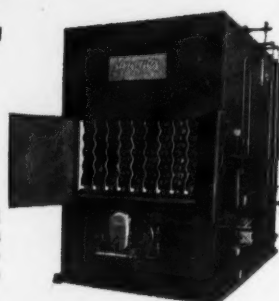
Water Tube Design
Inclined Tubes
Sectional Steel
Headers
Longitudinal
Drum

The Chemical Processing Industries

NEEDS

Boilers With Plenty of GUTS!

In design, construction and materials, Steamaster builds boilers with the guts to give reliable, efficient performance year in and year out.



The GUTS of the Steamaster Boiler.

Quick Facts About the Advantages of the STEAMASTER Water Tube Boiler.

- All Steel Construction.
- Positive Tidal Circulation of Water. Maintains all parts at equal temperature.
- Condensate Return System Built-in as an integral part of all boilers of 60 h.p. and up.
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- Large Combustion Area . . . Three Pass Heat Baffling gives high thermal efficiency.
- Choice of Fuel — Gas, Oil or Coal or any combination of these fuels to meet the fuel requirements of your plant.
- Fully Equipped for Automatic Operation. Finest of accessories.
- A.S.M.E. CODE — National Board Approved. Inspected and certified by Hartford Steam Boiler Inspection and Insurance Co.
- Full Range of Sizes from 10 h.p. to 300 h.p. as illustrated. The Model A for 3½ h.p., 5 h.p. and 7½ h.p.
- Can Be Fired Over Rated Capacity . . . without loss of efficiency.

Throughout the Chemical Processing Industry you will find Steamaster Automatic Boilers giving consistently excellent performance at low cost.

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ENGINEERS
AGREE:
STEAMASTER IS
THE BOILER
WITH PLENTY
OF GUTS!**

**Steamaster
AUTOMATIC BOILER CO.**

5825 Compton Ave., Los Angeles 11, Cal.
Sales and Service in all Principal Cities

When inquiring specify CP 2748 — see handy form pages 2-3

Page 10

New Solutions OF PLANT PROBLEMS

Neoprene Covering Protects Wire Rope Slings Against Corrosion

Provides electrical insulation; protects workers' hands; easily cleaned

PROBLEM — Acid plant found the frequent replacement of slings costly. Also, the needle-like wires that protrude from cable sometimes cause injury.

SOLUTION — A new development in wire rope that utilizes a Neoprene covering meets these problems. Protection against weathering, abrasion, corrosive liquids, and other factors is provided by the application of this coating of Neoprene after fabrication.

This jacket is about 1/8 inch thick and forms a close bond with the metal it protects. No metal is exposed at any point. For instance, a hemp core cannot act as a wick to draw deteriorating liquids into the heart of the wire rope. The Neoprene also provides electrical insulation from supporting structures.

The Neoprene-jacketed wire rope is available in the several one and two arm "Trylon Safety Slings" made by this company in minimum breaking strengths up to 30,000 pounds. Cables fabricated either with or without end thimbles can be supplied in lengths up to 50 feet.

RESULTS — Wire rope sealed from the elements and damaging atmospheres in the plant. Employees protected against hand injuries. The smooth resilient coating is easily cleaned. Sling replacements cut to a minimum.

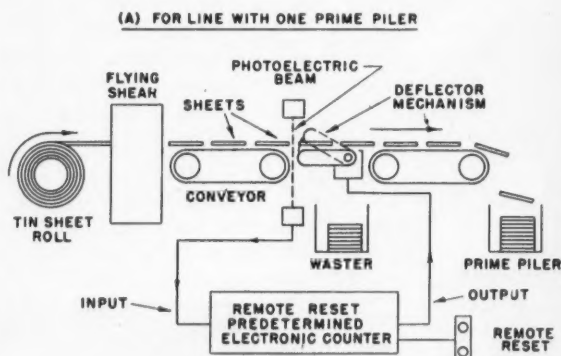
WIND TURBINE CO., Dept. CP, West Chester, Pa.

When inquiring specify CP 2749 — see handy form pages 2-3

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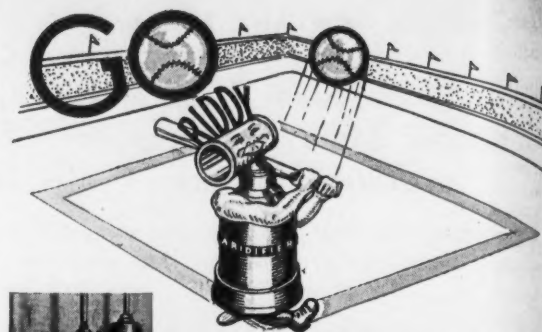
Count, Pile 1200 Sheets A Minute In Precise, Predetermined Lots

Electronic counter, deflector mechanism speeds production; is used with pills, buttons, etc.



Installation for lines with one "prime" piler

PROBLEM — Steel mill was using a mechanical type counter in piling tin plate as the sheets left the flying shear. The counter was limited to a speed of about ten sheets per second. Even at this speed, since the mechanical wear was excessive, the replacement costs were a real problem. Other limitations of the mechanical counter made it necessary to pile sheets into a waster



It's "GOO" to "GO" for compressed air lines

"Riddy" strikes a mighty blow for compressed air users by removing 92% of contamination that gums up orifices, damages finishes, and wears out equipment. An Aridifier knocks contamination "clear out of the ball park" with the centrifugal force of its four

counter-rotating rotors for this printing press manufacturer, at left. Send for Bulletin 147.

Logan Engineering Company
4900 Lawrence Avenue, Chicago 30, Illinois

Logan ARIDIFIER
Dries and Cleans Compressed Air



When inquiring specify CP 2750 — see handy form pages 2-3

MARLEY NOZZLES 3 Ways to Perfect Spray

Atomizing Nozzle for any service requiring a mist-like spray

Two-Piece Nozzle is easily cleaned without removal from piping

One-Piece Nozzle for maximum uniform output at lowest pressure

Write for Marley Nozzle Bulletins

MARLEY NOZZLES

THE MARLEY COMPANY, INC. • KANSAS CITY 15, KANSAS

When inquiring specify CP 2751 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

pile while a skid was placed on top of the first "prime" pile.

SOLUTION — A predetermined electronic counter used in conjunction with a deflector mechanism that channels the plate into the pile provides for accurate piling of sheets at the rate of 1200 per minute.

The desired count is selected by means of dial switches located on the front panel of the counter. A photo-electric detector designed specifically for the application is used to pick up the count and actuate the counter.

At the completion of each predetermined count the output of the counter, which consists of a high speed relay is used to control the deflector mechanism. Where lines have only one "prime" piler the skids are of course channeled to a waster pile. Where lines have two prime pilers the sheets are automatically channeled alternately (see drawing).

Dual predetermined electronic counters capable of predetermining two different sequential counts are being used to provide a warning signal at a selected number of sheets before the completion of the pile. The counters are available with either automatic or manual reset features.

In this shear line application counts are at rate of 1200 per minute but these counters have demonstrated capacity for counting and controlling with accuracy at rates up to 15,000 per minute. These higher rates are of particular interest in connection with such products as pills, buttons, bottle caps, etc. The pill-counting installation is shown on the accompanying photo. The packages are held in place by solenoid controlled gates until filled with a precise quantity.

RESULTS — Wear on counting devices and frequent replacement eliminated. No slippage. No interruption of continuous operation.

These counters permit modification of shearing lines so that piling may be alternate between two prime pilers instead of piling sheets into "waster" pile. Also, it is possible to operate at any desired speed and maintain a count of absolute accuracy.

POTTER INSTRUMENT CO., Dept. CP, 136 Roosevelt Ave., Flushing, N. Y.

When inquiring specify CP 2752 — see handy form pages 2-3

★

Manual Gives Data on Mineral Wool for Low Temperature Insulation

Low temperature insulation is discussed in a 24-page manual and work-book. Tells how to select insulation; gives data on forms, properties and application methods; and includes a chapter on principles and significance of vapor-proofing for various types of wall, floor and ceiling construction.

Typical case-history installations in cold storage work, freezing processes, cold-aging, food distribution, industrial refrigeration and air conditioning are presented. Includes graphs on representative thermal conductivities of various mineral wool forms; a chart for computing minimum insulation thicknesses to prevent condensation on cold surfaces, many other useful charts, tables, etc. 15 photographs. Single copies free. "Holding Low Temperatures with Better Insulation."

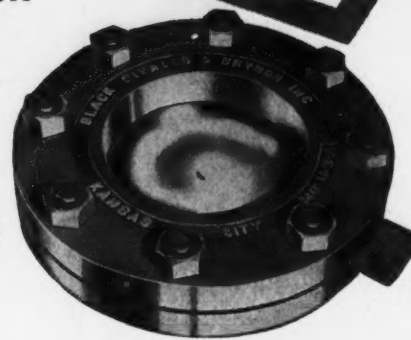
INDUSTRIAL MINERAL WOOL INSTITUTE, Dept. CP, 441 Lexington Ave., New York 17, N. Y.

When inquiring specify CP 2753 — see handy form pages 2-3

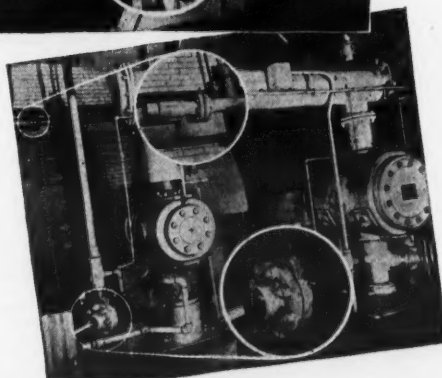
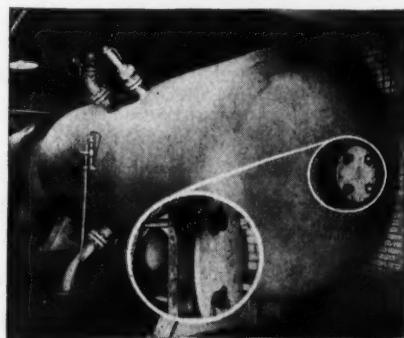
OCTOBER, 1947

Are You Risking Losses from COMPRESSED AIR EXPLOSIONS

There's Complete Protection Against Over-Pressure in **BS & B** SAFETY HEADS



● Don't scoff . . . compressed air systems do explode! Insurance company records offer proof. Vaporized oil-air mixtures touched off by a fleck of hot carbon, leaky discharge valves allowing hot air to be drawn back into the system, clogged intake filters overheating compressors . . . all these mean trouble. Inter and after coolers eliminate many dangers . . . relief valves handle normal pressure rises. But it takes SAFETY HEADS for that positive margin of safety. Yes, sir, SAFETY HEADS act instantly, even to high speed pressure waves! Provide full, pipe-size unrestricted relief opening.



Thousands of Installations Prove Effectiveness of SAFETY HEADS

No other pressure relief device offers such complete protection with such economy. No other device can approach the relief capacity of a SAFETY HEAD in a given diameter. The simple rupture diaphragm bursts in tension at pre-determined pressure and temperature. You'll be amazed at their versatility . . . 5 to 25,000 psi . . . a size for every need. Quickly and easily replaced.

Your plant, like the Central New York Power Plant at Oswego, pictured at left, can profit from the protection of SAFETY HEADS. Write today for complete information and specifications. Address the Special Products Division; Black, Sivalls & Bryson, Inc.; Power and Light Building, Kansas City 6, Missouri.

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BLACK, SIVALLS & BRYSON, INC.

KANSAS CITY, MO.
CASPER, WYO.

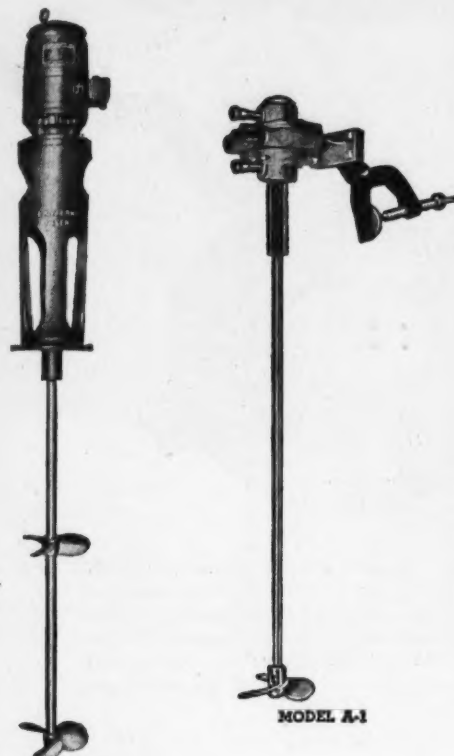
RELIABILITY

OKLAHOMA CITY, OKLA.
CALGARY, ALTA.

When inquiring specify CP 2754 . . . see information request blank, pgs. 2-3

EASTERN MIXERS

PORTABLE SIDE-ENTERING VERTICAL AIR-POWERED

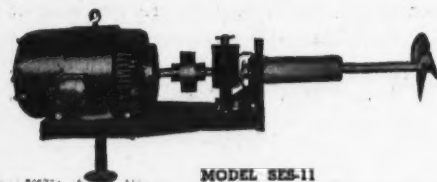


MODEL VG-9D

MODEL A-1

If you have a mixing or blending application ranging from a one pint laboratory stirrer to 100,000 barrel blending tank, there is an Eastern Mixer that is right for the job. Let our engineers help you.

Eastern has developed a mechanical rotary seal to replace the conventional stuffing box in side-entering mixers. It is applicable for non-corrosive liquids, including hydrocarbons, aqueous solutions, etc. It is particularly desirable for use with oil-sensitive substances. Maintenance trouble will be a thing of the past. No re-packing with a tank empty or full will be required.



MODEL SEB-11

EASTERN INDUSTRIES
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NEW HAVEN, CONNECTICUT
Norwalk, Connecticut Newton, Massachusetts

Briefs . . . from contemporary publications

Here's a quick look at interesting articles appearing in other publications

. . . as selected by Technical Editor, H. McCormack

Recent Advances in the Use of High Pressures

The trend towards the use of higher pressures to induce chemical reactions desired in chemical processing are indicated in a 4 page article that is illustrated with 3 tables. Examples are cited from current practice, and the advantages secured are outlined.

A study of reaction kinetics, thermodynamic considerations, pressure-volume-temperature relations and catalysts, is discussed in the article.

The desirability of a better understanding of conditions modifying reaction rates is commented on. Article includes extended literature citations. (From "Industrial & Engineering Chemistry", August, 1947)

★

Natural Rubber: Progress Towards an Assured Supply

A six page article including 12 figures points out the studies initiated during World War II of possible rubber production in the Americas. Mention is made of all plants known to produce any quantity of rubber.

Plant selection, plant propagation and rubber yields are outlined. On the basis of data presented the author reaches some conclusions as to future investigations that show promise. (From "India Rubber World", July 1947)

★

Ethylene Purification

9 pages describe ethylene purification by the use of an absorption process. Authors discuss the industrial importance of pure ethylene and the various methods used for its recovery. 2 flow sheets, 4 tables, 4 figures and 3 photos illustrate the article. An absorption type ethylene purification unit is described with operating conditions. (From "Chemical Engineering Progress", July, 1947)

★

Mercury Determination in Inorganic and Organic Compounds

Macro and micro methods applicable to the determination of mercury in samples containing up to 250 mgm of Hg. are outlined in a 3½ page article. Comparisons with other methods are cited and the equipment with the necessary standard solutions is described. 3 tables and 2 figures illustrate the article. (From "Analytical Chemistry", July, 1947)

★

Estimating Mineral Wool Insulation

This 4½ page article contains a table of thermal conductivities for mineral wool at different temperature levels and different wool densities.

Thermal characteristics of the customary types, such as loose fibres, blocks, blankets and fabricated pipe covering are tabulated. 14 tables of data include a guide for the selection of proper thickness of pipe coverings for various service temperatures. (From "Chemical Engineering", July, 1947)

Handling Vinylidene Chloride

Enumeration of the decomposition products secured from vinylidene chloride, and conditions causing such decomposition, is made in this ½ page article. It recommends proper handling and storage precautions and methods for eliminating decomposition products if they are formed. (From "Chemical & Engineering News", July 28, 1947)

★

Adsorptive Drying Units: Their Design and Use

21 pages in this article deal primarily with adsorptive drying as applied to the drying of various gases. It is illustrated with 29 figures, 6 tables, 3 pages of discussion and extended literature citations. It discusses selection of drying system, drying costs, Florite Desiccant, drying unit deficiencies of various common desiccants. (From "Chemical Engineering Progress", July, 1947)

★

Hemicelluloses, Their Quantitative Isolation, and Summative Analyses of Wood

A 4 page article presents a method by which hemicellulose may be separated from holocellulose. The method described is applied to the analysis of 7 types of wood.

For Fastenings that LAST Think of Monel FIRST

Monel® fastenings are called "fastenings that never fail." For they have all the properties you need for dependable nails, screws, nuts, bolts, pins, washers, etc.

They never rust . . . never "freeze" in position . . . never cause ugly rust streaks.

They're stronger than brass, or bronze or common steel fastenings . . . and they stay strong even when used in salt water, corrosive atmospheres, caustics and most acids.

Extra tough and ductile, they take more oversteering than common steel fastenings can take.

Use them in sub-zero cold or at red heat. They are always ready with the strength needed to do their job.

Bury them underground . . . use them underwater . . . or expose them outdoors. They'll always give the same dependable service.

But, don't take our word for all this!

Test for yourself the superiority of Monel fastenings. Let us know the type and size you need. We'll have your nearest supplier send samples for testing.

Remember, no matter what type fastening you use, you can get standard types from stock and special ones made on quick order, in stronger, tougher, safer Monel.

*Reg. U.S. Pat. Off.



THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

3 tables illustrate the article. The summative analyses, made by two different methods, details of which are given, are tabulated. The meaning of the term a cellulose is discussed. A graph represents the components of the extractive-free wood cell wall. (From "Analytical Chemistry", July, 1947)

★

Furnace Water Walls

The effects of furnace water walls on furnace performance and maintenance costs are outlined in this 2 page article illustrated with 1 figure and 1 table. Reasons for higher heat release are presented as well as reasons for lower maintenance charges. (From "Power", July, 1947)

★

Mechanism of Heat Transfer in Panel Cooling

In a 7 page article which includes 5 tables, 11 figures and a number of illustrative calculations, the author points out the methods for computing necessary energy transfer to reach a pre-determined temperature level.

The discussion highlights the contributions to the problem which are to be found in this paper. (From "Refrigerating Engineering", July, 1947)

★

Resorcinol Resins: Effect of pH on Their Reactivity

Author reviews the early work on this subject including the behavior with various catalysts and at varying pH. The objective of the production of a room temperature setting resin, chiefly for bonding purposes, is stated.

Ratio of reactants, catalyst, sticking point of the resin and the pH of a 50% water solution of the resin are tabulated. Another tabulation presents figures as to the reactivity of the aqueous resin solution. Three pages. (From "Modern Plastics", August, 1947)

★

Fermentation Industry During World War II

A 4 page article, illustrated with 3 figures, 2 tables and 1 graph, reviews the production of chemicals by fermentation. Raw materials used, processes operated and the quantity of products obtained are pointed out.

Review covers: ethyl alcohol and by-products, butylene glycol, acetone-butanol, lactic acid, acetic acid, citric acid, gluconic acid salts, yeast, penicillin and streptomycin. (From "Industrial & Engineering Chemistry", August, 1947)

★

Freeze Drying

This 5 page article presents the details of freeze drying as applied to penicillin, blood plasma and orange juice. Data presented enables the reader to evaluate the process for other applications. 9 figures illustrate the article. (From "Chemical Engineering Progress", July, 1947)

★

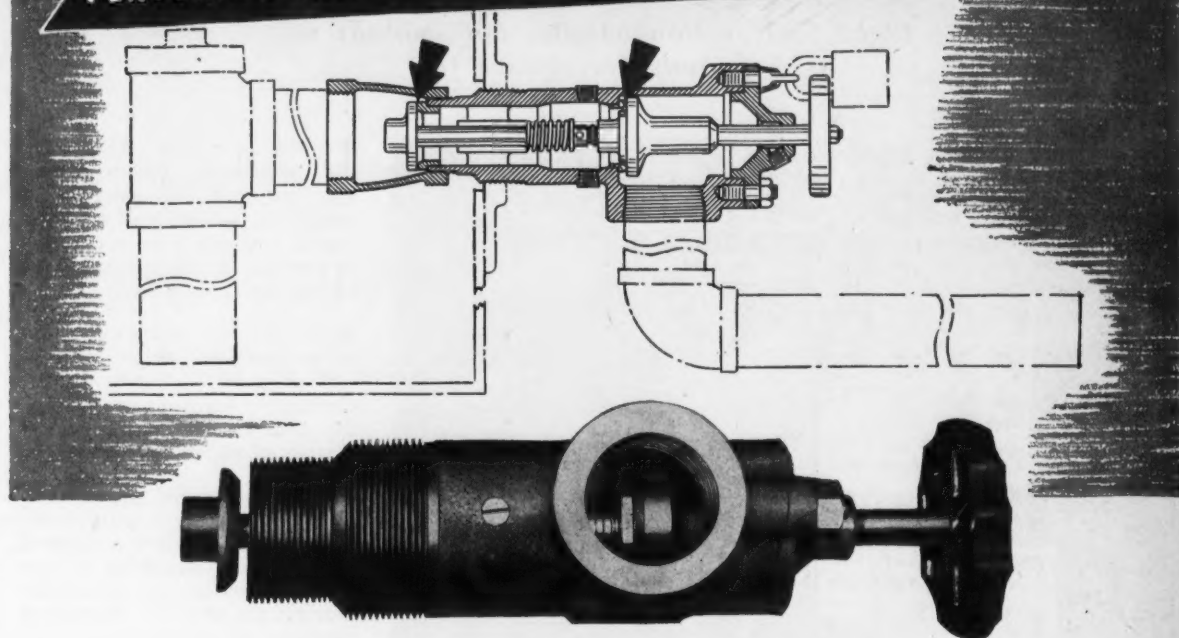
The Heat Pump

The choice and cost of various systems employed for seasonal heating and cooling are discussed in a 5½ page article. This includes 10 figures and a typical example to show costs of operation.

Advantages possessed by such a system under different operating conditions are presented. Data desired for further installations and adaptations are indicated. (From "Refrigerating Engineering", July, 1947)

OCTOBER, 1947

FEATURING THIS DOUBLE VALVE CONSTRUCTION



OCECO

WATER DRAW-OFF VALVES

reduce maintenance and servicing costs

● Oceco Water Draw-Off Valves feature a unique double valve design that permits the valve, stem and bonnet of the outer valve to be removed for servicing,—while the inner valve remains closed against the liquid, thus reducing the expense and inconvenience of emptying the tank for valve maintenance.

The inner and outer valves—see diagram above—operate on the same stem. The inner valve seats first, as the valve is closed, permitting the chamber between the two valves to be drained of water before the outer valve closes. This prevents water from being trapped in the chamber, with resulting damage to the valve in freezing weather.

The outer valve is provided with a replaceable composition insert which furnishes an efficient, liquid-tight closure against the valve seat. No stuffing boxes or packing are necessary, because, when the valve is closed, the stem is completely shut off from the liquid. And when the valve is open, the conical back of the outer valve, seats tightly into the bonnet avoiding leakage. A cadmium plated loop nut permits the valve handle to be locked in closed position to prevent unauthorized withdrawals.

Furnished in 2" x 1½"; 3" x 2" and 4" x 3" sizes. Complete details including specifications and prices furnished promptly.

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Division of THE JOHNSTON & JENNINGS CO.

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MOBILE • CASPER • SAN FRANCISCO • LOS ANGELES • TORONTO AND MONTREAL

When inquiring specify CP 2757 . . . see information request blank, pgs. 2-3

Light-Weight Portable Conveyor Resists Corrosion

*Eight foot section handles 600 pounds or
75 pounds per square foot*

Material Handling



Eight foot section of portable aluminum conveyor weighs 31½ pounds

USES — This lightweight aluminum gravity wheel-type conveyor is designed to increase the portability of manufacturer's conveyor installations, and to provide an easy-to-handle type of conveyor for general use.

FEATURES — Aluminum conveyor has clean design, with no raw edges to cut hands or tear clothing. Sturdily constructed. No tools are necessary to set up a series of sections for operation.

Increases portability and flexibility of manufacturer's conveyor installations where there is frequent necessity for reshuffling of conveyor routes as production changes are effected. Aluminum conveyor is corrosion-proof and will withstand weathering when used in the open. Nuts and bolts used in assembly are plated for corrosive resistance.

DESCRIPTION — Manufacturer states actual tests show that an eight foot section of the conveyor

will support a distributed load of 2570 pounds before signs of failure appear. Standard rating of the section, with 10 ball bearing wheels per foot, is 600 pounds, or 75 pounds per foot. Conveyor frame channel, of formed aluminum No. 61-ST, is 2½" deep, fabricated from ½" x 4" strip. Wide faced aluminum wheels are used in the conveyor to reduce weight and keep free-running action. Frictionless ball-bearing wheels permit movement of materials with a 3" decline per 8 foot section.

Wheels have an aluminum outer shell and washer, and the cone construction is baffled to prevent dirt interference in the ball raceways. Both inner and outer ball raceways are of hardened steel and grease-packed. Axles are high carbon steel with Hug-lock nuts. Spanner tubing is made of No. 61-ST aluminum.

Standard self-locking hook and bar couplers similar to those used on steel conveyors in this line permit ready coupling with other standard equipment of this company.

Aluminum alloy used in the construction of the conveyor is heat-treated and aged for increased strength.

A five-foot length section of the conveyor weighs 19 ½ pounds, six-foot section 23 ¼ pounds and ten-foot section 39 pounds.

THE RAPIDS-STANDARD CO., INC., Dept. CP, Dept. AW-108, 342 Peoples National Bank Building, Grand Rapids 2, Mich.

When inquiring specify CP 2758 — see handy form pages 2-3

HIGH-TIERING FORK TRUCKS Have LOW UPRIGHTS

Produced in 3000 to 5000-lb. capacities for carloading, warehousing; easily handled

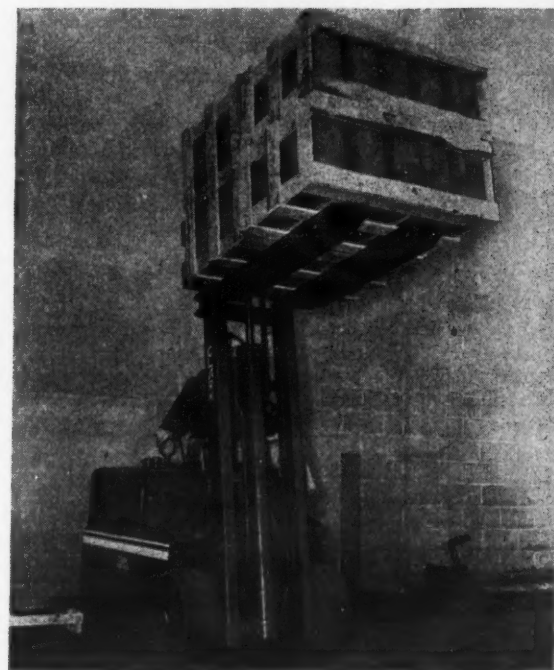


"Carloader" fork truck has overall height of 83" with forks lowered

USES — Battery and gasoline-powered "Carloader" fork trucks for higher tiering with lower uprights. For freight car or warehouse use.

FEATURES — Improved efficiency with increased maneuverability, less driver-fatigue, wider utility. Designed for effective traction on rough surfaces, with protection from frame distortion or spring breakage. Other features include maintenance of proper, uniform speeds and correct, constant water temperature; easy wheel removal and accessibility to motor; interchangeability of parts with previous models.

DESCRIPTION — Produced in three capacities of gasoline models: 3000 lbs. at 15", 400 lbs. at 15", 4000 lbs. at 24", or 5000 lbs. at 16". Battery-powered "Car-model.



Models available in 120", 144" and 72" lifts

CHEMICAL PROCESSING Preview

Overall height, with forks lowered: 83". Standard lift is 120" for all capacities, with an extra-high lift model of 144" and a low-lift model of 72".

Driver-efficiency and comfort are amplified by a spring-upholstered, adjustable seat with backrest; slanting floorboard for increased accessibility of controls and easier operation; improved accelerator and clutch action. Steering gear bracket mounted on truck frame eliminates transmission of vibration to driver.

Pivoted steering axle combines 4-wheel stability with the flexibility of 3-point frame suspension. Hydraulic valve is mounted directly on sump, eliminating pipes and fittings or possible leaks. Flexible cross lines are used on tilt cylinders. Longer engine life is made possible by means of a mechanical governor.

Construction includes water pump, steel hub wheels, improved air cleaner, rugged frame with frame members constituting outermost part of vehicle. Exhaust is through counterweight, horizontal at 15" height. Motor is accessible by means of large side louvers, or complete hood may be removed. Interchangeability with previous models includes axles, transmission, clutch, engine, wheels, tires and new upright member.

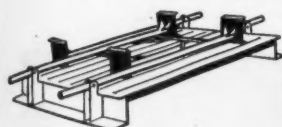
CLARK TRUCTRACTOR, Division of Clark Equipment Company, Dept. CP, Battle Creek, Mich.

When inquiring specify CP 2759 — see handy form pages 2-3

★

Steel Pallet Combined with Stacking Attachment

Has capacity of 4000 pounds and is available in several sizes for bulk and heights.



Multi-Stak Pallet Stacker unit

USES — Unit is useful in material handling problems where it is necessary to stack crushable material of varying size.

FEATURES — No weight is placed on the merchandise itself. Loaded pallets may be placed on top of one another as high as the fork lift truck ceiling will permit.

DESCRIPTION — In use the supporting standards fold across the top of the pallet for compact storage in a minimum amount of space.

When not in use, the supporting standards fold across the top of the pallet for compact storage in a minimum amount of space.

With the pallet stacker unit miscellaneous merchandise of varying sizes and weights and odd shapes may be combined into unit lots.

ELIZABETH IRON WORKS, Dept. CP, P.O. Box 360, Elizabeth, N. J.

When inquiring specify CP 2760 — see handy form pages 2-3

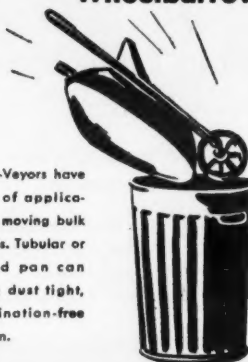
OCTOBER, 1947

How **AJAX** LO-VEYORS

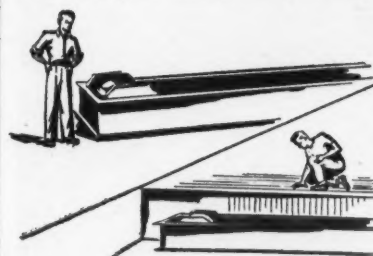
MAKE IT EASY TO CUT NON-PRODUCTIVE COSTS

Throw Away Your Wheelbarrows

Ajax Lo-Veyors have dozens of applications in moving bulk materials. Tubular or covered pan can provide dust tight, contamination-free operation.

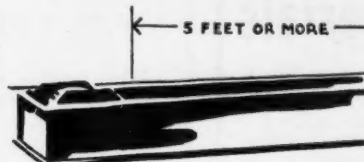


On, Above, or Below Floor



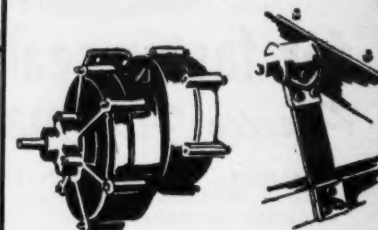
Can be installed under railroad tracks for unloading hopper cars... can be set on the floor... can be installed below floor level... can be suspended from wall or ceiling. Ajax Lo-Veyors are complete units delivered ready to use.

Short or Long Carries



You can use Ajax Lo-Veyors for moving material distances of 5 ft. and up. Material can be moved from one operation to the next... plant layouts can be rearranged

Unharmed by Abrasives



Ajax Shaler-Shaker drive unit is completely enclosed and runs in oil. Rubber bushed conveyor pan supports require no lubrication and are unharmed by abrasive materials. Ajax Lo-Veyor design eliminates conveyor belts, rollers, idler pulleys and bearings.

You need no longer think of conveying equipment as expensive. In fact, Ajax Lo-Veyors not only cut costs of handling bulk

material but are low in first cost and low in operating and maintenance costs.

Under present conditions, savings on handling material are one of your most important opportunities for cost reduction. Ajax Lo-Veyors are being used by the Who's Who of Industry for moving dry materials,—explosive and non-explosive. Their record of satisfaction is one of their strongest recommendations. Write telling us what you have to move.

AJAX FLEXIBLE COUPLING CO. INC.

WESTFIELD, NEW YORK

When inquiring specify CP 2761 . . . see information request blank, pgs. 2-3

THE UNION SPECIAL *Electronic* SEAMER



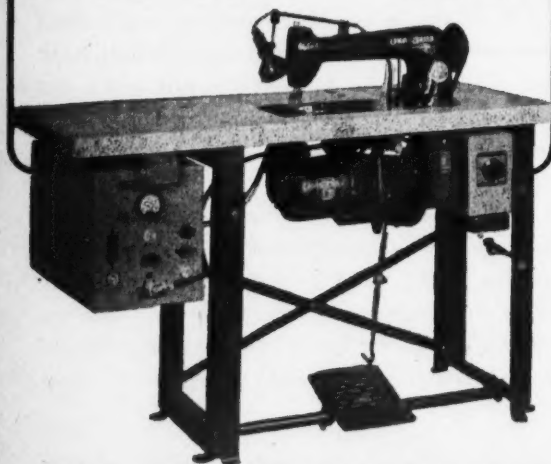
for faster sealing of Plastic Film materials

- **VERSATILITY.** Heat seals VINYLITE, KOROSEAL, VELON, WATASEAL, PLIOFILM, and other non-conducting thermoplastic films.
- **ADVANCED DESIGN.** Increased convenience in operation . . . precision control . . . high uniformity in work produced.
- **IMPROVED SPEED.** No stopping for adjustments when crossing seams.
- **A QUALITY PRODUCT.** Built to Union Special's standards for quality. Ask for new bulletin No. 257.

UNION SPECIAL MACHINE COMPANY

442 N. Franklin St.,

Chicago 10, Ill.



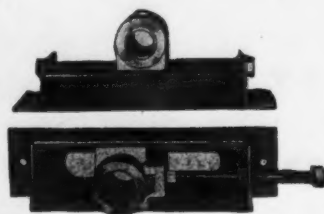
Union Special
Machines Company

When inquiring specify CP 2762 — see handy form pages 2-3

Material Handling

Conveyor Belt Take-Up Has Acid-Resistant Bearing Housing

Self-lubricating; light weight, compact



Take-up with pressed steel frame

USES — Belt conveyor take-up, provides efficient service in keeping belts operating under best conditions.

FEATURES — Light weight in construction but with exceptional strength. Self-lubricating.

DESCRIPTION — This compact unit is built with a pressed steel frame and has a corrosion-acid-resistant bearing housing fabricated from a specially heat treated aluminum alloy that combines light weight and unusual strength.

The bearing (sealed type), equipped with a porous bronze leaded bushing, is self-lubricating. Sizes range from 15/16 inch to 1-5/16 inch in two types classified as "A" and "B." Take-up travel is six inches.

PATRON TRANSMISSION CO., Dept. CP, 129 Grand St., New York 13, N. Y.

When inquiring specify CP 2763 — see handy form pages 2-3

★

Mobile Feeding-Table Handles 10,000 lbs. of Sheet Steel

Hydraulic, toggle-lever type unit has 12" lift, is 30" wide, 96" long in standard model

USES — Table for handling and feeding loads of sheet steel to presses and shears. For capacities up to 10,000 lbs. For fork truck or overhead loading either in stockroom or at press. Also for transporting loads.



Hydraulic, toggle-lever sheet-feeding table

FEATURES — Hydraulic elevation permits leveling load with press bed for efficient horizontal feeding. Toggle-lever design gives full support to entire length of table top, desirable in case of long, heavy loads.



this smooth performer makes **HANDLING** easy!

(at Household Paper Products, Detroit, Mich.)

Rapid-Wheel Conveyors carry packaged goods by the free force of gravity to take the high cost and hard work out of material movement. Packages roll along on grease packed wheels as smoothly as water flowing down hill. One man at each end of the conveyor line can move a carload of goods in a fraction of the time possible with hand labor.

Rapid-Wheel Conveyors are available in standard 5' and 10' sections. They can be set up or dismantled at a moments notice and carried wherever there is a handling job to be done. You can reduce your handling time and costs . . . with this modern conveying system.

OFFICES IN PRINCIPAL CITIES

Manufacturers of
STEEL FORGED CASTERS • TRUCKS • CONVEYORS • POWER BOOSTERS

The Rapids-Standard Co., Inc.

Sales Div.—350 Peoples National Bank Bldg., Grand Rapids 2, Mich.

When inquiring specify CP 2764 — see handy form pages 2-3

Bigger Loads Bigger Savings

... when you
move it with a

YALE

**THERE'S A YALE
ELECTRIC TRUCK
TO FIT YOUR NEEDS**

Send for catalog
today, specifying
type of truck in
which you are
interested.

YALE THE YALE & TOWNE MANUFACTURING CO.
4530 Tacony Street Philadelphia 24, Pa.

HAND LIFT TRUCKS • HAND AND ELECTRIC HOISTS • KRON DIAL SCALES

When inquiring specify CP 2765 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

Material Handling

Accessories permit adaptation to different press heights and material sizes.

DESCRIPTION — Hydraulic, toggle-lever type sheet-feeding table. Capacity, 10,000 lbs. Table top is 30" wide, 96" long. Lowered height, 22"; elevated height, 34". Total lift, 12".

Lifting action is by hydraulic pump, through hydraulic cylinders which operate laterally against toggle-lever mechanism. Table guides are inverted: no uprights extend above table top. Standard model is equipped with one set of 12" diameter wheels, one set of 8" diameter swivel casters, floor lock, two-speed hydraulic foot pump.

Pump may be mounted on unit or furnished with flexible hose attachment for placing wherever most convenient for operator. An optional feature is a motor-driven pump with push-button controls.

Extensions for table top may be furnished for support of loads wider than 30" and longer than 96". Superstructures are available in any thickness to increase height of table top, retaining 12" lift.

LYON-RAYMOND CORPORATION, Dept. CP, 3699 Madison St., Greene, N. Y.

When inquiring specify CP 2766 — see handy form pages 2-3

Shifts Lift Truck Carriage-Face, Forks, 3-1/2" to Either Side

"Side Shifter" accessory saves maneuvering in stacking and exact positioning

USES — "Side Shifter" fork lift truck accessory for picking up or depositing a unit load in an exact location



Side Shifter for lift trucks

without repositioning the truck itself. For lateral movement of a load, on forks or pallet, to either side. For operation with standard towmotor, Priester or Schmidgall forks.

FEATURES — Eliminates truck maneuvering often required in operations where loads must be positioned exactly, especially in stacking. Saves time and effort. Assures maximum use of available storage space.

DESCRIPTION — Unit is hydraulically-operated by a sensitive, double-acting cylinder. This is controlled by a lever mounted within convenient reach of operator.

Moves carriage-face and forks a distance of 3-1/2" in either direction.

TOWMOTOR CORPORATION, Dept. CP, 1226 E. 152nd St., Cleveland 10, Ohio.

When inquiring specify CP 2767 — see handy form pages 2-3

OCTOBER, 1947

PALMER-SHILE

MATERIALS HANDLING EQUIPMENT

Designed to do Specific Jobs Better

Combination

TRUCK and

DRAIN RACK

Loads Automatically

Weights only 90 pounds, yet handles barrels weighing up to 1,000 lbs. with surprising ease. Sturdy frame, free rolling wheels and proper balance make light work of trucking the heaviest drums...

Tilt truck against drum, drop sliding steel grip over top of rim—rock truck back to wheeling position and loading is automatic.

To use as drain or storage rack detach handles to conserve floor space. Slight downward push on truck handles raises wheels and lays rack on floor in convenient draining position. One pair of handles will serve any number of trucks.

Heavy angle iron frame, tubular handles, all welded construction.

Barrel and Box Grab

Item NS-288 \$55.25

For picking up any wood or steel barrel, box or container, 40" diameter or less. 2000 lb. capacity. Rigid toggle construction. Weighs 35 lbs.

Drum and Barrel Sling

Item B-205 \$12.50

Handles barrels, drums, kegs—anything with a lip. Half ton capacity. Heavy welded chain and forged grab hooks. Weighs 8 1/2 lbs.

Carboy Truck

Item B-488 M \$38.00
Item B-488 R \$42.00

Gripping yoke makes loading automatic. Hardened steel studs grip load—no slipping. All steel welded construction—20" wide, 48" in length—capacity 500 lbs. Wt. 75 lbs.

Barrel Truck

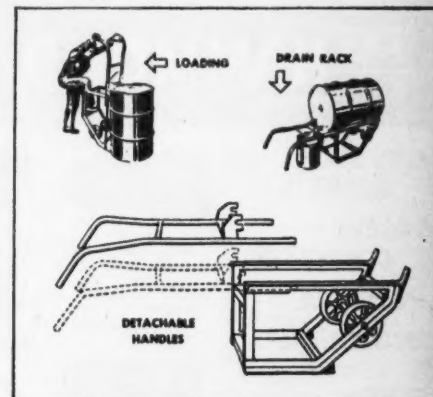
Item S-911-M \$33.50 (Metal Wheels)
Item S-911-R \$38.50 (Molded-on rubber wheels)

Automatically loads barrels up to 1,000 lbs. Heavy tubular welded construction—sliding grip. wide—wt. 85 lbs.

Barrel and Box Skid

Light, sturdy, all steel welded construction. Handles heaviest barrel or box. 14" wide.

Item B-470-8 (8 feet) \$22.00
Item B-470-10 (10 feet) 27.50
Item B-470-12 (12 feet) 33.00



TWO STYLES

With and Without Detachable Handles

Item NS-506 (Handles welded to frame)	\$42.50
Item NS-506 DH (Truck Complete with detachable handles)	44.50
Item NS-506 R (Item NS-506 DH without handles)	32.50
Item NS-506 H (Detachable handles only, for use with NS-506 R)	12.00

Order by "Item" number. Prices f.o.b. Detroit.

Palmer-Shile Co.

16016 Fullerton Avenue

Detroit 27, Michigan

When inquiring specify CP 2768 . . . see information request blank, pgs. 2-3

UP HILL!

Actually pulling
a fully loaded
2,000 lb. Electric
Hoist up a 5% grade

New Trojan TRACTOR

The TROJAN TRACTOR can be
applied to TRAVEL . . .

1. Present hand travelled mono-rail hoists.
2. Existing hand travelled crane bridges.
3. Monorail conveyor lines.
4. Open and Close garage and hangar doors.

You probably have slow, hand propelled units which the Trojan Tractor can move by power,—faster and economically. Let us know what they are; we will give you the details.

**DETROIT HOIST
& MACHINE CO.**

8222 MORROW ST.
DETROIT 11, MICH.

When inquiring specify CP 2769 — see handy form pages 2-3

Material Handling

Line of Rubber-Tired Wheels Has Sealed, Welded Hubs

No nuts, collars or washers. Cannot lose bearings. Sizes are 4 to 14" OD

USES — Rubber-tired industrial wheels for factory, beverage and appliance trucks, wheelbarrows, welders, battery chargers, etc.

FEATURES — No nuts, collars or washers to wear or get out of adjustment. Tires are well known brand names, and demountable with ordinary hand tools.

DESCRIPTION — Wheels have sealed and welded



Rubber-tired industrial wheels

ball bearing hubs which cannot lose balls or get out of alignment. Sizes range from 4 to 14" extreme diameter, and from 1.75 to 3" tire diameter. Puncture-proof "Zero Pressure."

Available with choice of sealed ball bearings, plain bronze or oil-impregnated sintered bronze bearings. Maximum standard bore is 5/8". Manufacturer also makes a solid rubber-tired wheel, vulcanized on ball-bearing hub. Illustrated catalog sheets contain full details.

CHAMPION IRON WORKS, Inc., Dept. CP, 2223 Gratiot Ave., Dept. J, Detroit, Mich.

When inquiring specify CP 2771 — see handy form pages 2-3

★

Pallet Catalog Shows Types for Many Materials-Handling Problems

Nine types of materials-handling pallets are pictured and described in an 8-page catalog. 32 in-use photographs graphically demonstrate the most advantageous and economical application of each pallet for various sizes and types of loads.

Pallets illustrated include standard units for handling boxes, cases, rolls, cartons, bales, barrels, drums, etc.; lightweight and bolted cargo pallets, bin rack types, stevedore and warehouse varieties. Literature states manufacturer is equipped to design and make pallets and handling material for both specialized and ordinary problems.

ACME PALLET COMPANY, Dept. CP, 15 Park Row, New York, N. Y.

When inquiring specify CP 2772 — see handy form pages 2-3



BY THESE GOOD NAMES you shall know us

• These and hundreds of other users of shipping containers are numbered among our customers. Whatever the product may be—from pianos to precision parts—our 25 years' experience enables us to design containers that assure better protection, reduce weight, and provide for increased production. Write today for your free copy of "The General Box."

25 YEARS
YOUNG
1922-1947

25 years experience
in designing better
containers for all
industry.

GENERAL BOX COMPANY

GENERAL OFFICES: 522 N. Dearborn St., Chicago 10, Illinois
DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Shaboygan, Natchez, Winchendon. Continental Box Company, Inc.: Houston, Dallas.

When inquiring specify CP 2773 — see handy form pages 2-3

THE "HAMMOND" Line

ELEVATOR
BUCKETS

SCREW
CONVEYOR

HANGERS

END-THRUSTS
and
SCREW

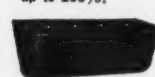
CONVEYOR
ACCESSORIES



"NU-HY"
The patented design of this bucket offers highest efficiency in elevating granular materials, increasing capacities up to 100%.



"NU-TYPE"
Nothing like it for elevating flour and other soft stacks. Doesn't pack. Discharges clean.



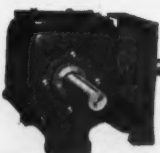
"SALEM"
Improved design. Made in standard and heavy gauges.



STREAMLINED
HANGERS
Designed to offer minimum obstruction to flow of materials.



Helioid or
Sectional
Flight Screw
Conveyor.

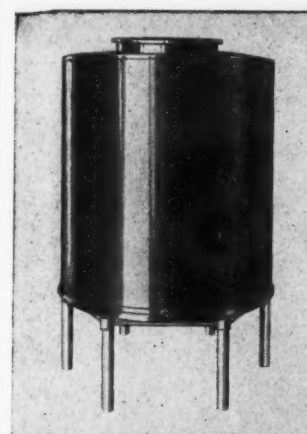


"ACE"
COUNTER-
SHAFT
BOX ENDS
A revolutionary
improvement in
Screw Conveyor
Drives.

Write for Catalog 147, illustrating the many outstanding material handling developments we have to offer.

Screw Conveyor Corporation
495 HOFFMAN ST. HAMMOND, IND.
ENGINEERS PRODUCTS MANUFACTURERS

When inquiring specify CP 2770 — see handy form pages 2-3



Write for
Catalog

**STAINLESS
STEEL
PROCESSING
AND
STORAGE
VESSELS**

We build them in many capacities, and styles for standard or special uses.

All seams are welded inside and out. Welds are ground perfectly smooth and polished. Easy to clean and keep sanitary. Bottoms on most styles are designed to be self-draining. Highest quality finish and workmanship.

Mixing units, flush valves, faucets, and other fittings required for your individual requirements, are readily adaptable.

Let us figure on your next requirements. Write Dept. B.

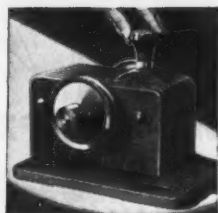
PFAHLER - CLELAND CO.
STAINLESS STEEL TANK SPECIALISTS
GALION, OHIO

When inquiring specify CP 2774 — see handy form pages 2-3

PRECISION SPEED of chemical equipment REQUIRES

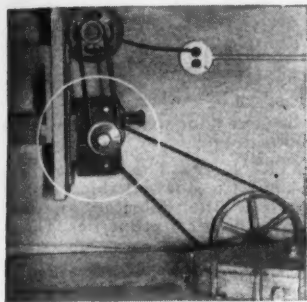
Precision Control

Make sure with this instant accurate control of a line proved by more than 50,000 users.



Lovejoy-IDEAL "Select-O-Speed"

Easily installed with new or old machines



Almost infinity of speeds at touch of handwheel or lever. Ratios to 10:1. Compact. Durable. Sizes to 7 1/2 h.p. LOW COST.



Also Variable Speed Pulleys to 8 h.p., wide V-Belts, Driven Sheaves, Adjustable Motor Bases & Counter Shafts.

Speed of traveling equipment controlled by "Select-O-Speed." Adjusts for Temperature and size of loads.

Send for complete catalog illustrations with valuable engineering information. Write

LOVEJOY FLEXIBLE COUPLING CO.

Also Mfrs. of Lovejoy Flexible Couplings

5072 W. LAKE STREET

CHICAGO 44, ILLINOIS

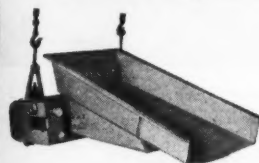
When inquiring specify CP 2775 — see handy form pages 2-3

SYNTRON

"Vibra-Flow"

VIBRATORY FEEDERS

with Variable Control
of Material Flow



Speed Up
Material Handling



Provide a smooth, effortless flow of bulk material—dry or damp, hot or cold—to belt conveyors, crushers, driers, ball mills, packaging machines, etc.



Available in a range of sizes—from a little 1 ton per hour model up to a big 500 ton per hour model.

Write for Folder 9-46

SYNTRON CO.

110 Lexington, Homer City, Pa.

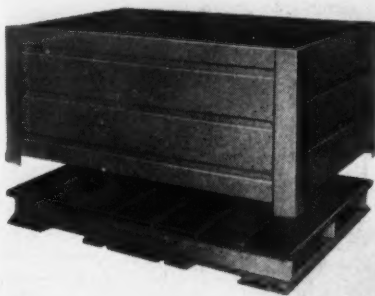
When inquiring specify CP 2776 — see handy form pages 2-3

OCTOBER, 1947

Material Handling

Metal Pallet with Nesting Ring

Furnished with ring permanently welded to pallet if specified



Pallet with nesting ring

USES — This all metal pallet with nesting ring is designed for use either with power truck or hand truck.

FEATURES — Pallets are built with beveled edges to allow hand truck wheels to ride over easily and have a center channel support.

DESCRIPTION — The standard pallets are of various types and sizes, including a single face pallet rack with stacking corners for handling irregular pieces; and a double-faced two way pallet for power fork truck only.

PALMER-SHILE CO., Dept. CP, 16002 Fullerton Ave., Detroit 27, Mich.

When inquiring specify CP 2777 — see handy form pages 2-3

Direct Contact Open Heaters Aid Processing, Boiler Feed

Three lines of open heaters for direct-contact heating of boiler feed and industrial process waters with available exhaust or live steam are shown and described in a 24-page booklet.

Equipment includes 1-piece cast iron box heaters with sliding heat trays for capacities to 9000 lb./hrs.; cast and welded rolled plate constructions up to 500,000 lb./hrs.; jet-type open heaters above 250,000 lb./hrs. capacity. Latter is said to be especially useful in process work requiring large quantities of heated water. Characteristics, accessories, installation photographs and flow diagrams are included. Publication 4091.

COCHRANE CORPORATION, Dept. CP, 17th St. & Allegheny Ave., Philadelphia 32, Penna.

When inquiring specify CP 2778 — see handy form pages 2-3

Get the Load out of your Plants

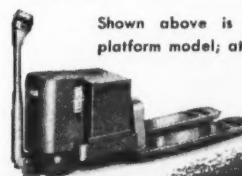


...WITH THE NEW HydroLectric K

In shipping . . . receiving . . . intra-plant material moving, the New HydroLectric Model K is proving its stamina and economy in many of the nation's leading plants.

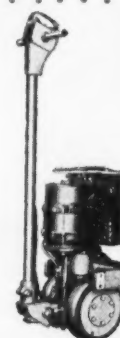
Reports from users like the well-known valve manufacturer illustrated above indicate that the new trucks easily out-perform previous Lift Truck models, long considered "prime" movers in industry and commerce.

With many new features making use and maintenance even easier, the HydroLectric "K" deserves your prompt investigation. Write for new, illustrated bulletin showing mechanical details and action photos.



Shown above is the HydroLectric "K" platform model; at left, the pallet model.

Both are produced in a wide variety of sizes for every use.



Rugged heart of the HydroLectric "K" is the Stuebing Power Package. Dual front wheel drive, transmission, motor and control in a single unit, easily removed and replaced for infrequent maintenance.



LIFT TRUCKS INCORPORATED

2425 Spring Grove Ave., Cincinnati 14, Ohio

When inquiring specify CP 2779 — see handy form pages 2-3

Material Handling at First U. S. Tin Plant

-built around BAKER TRUCKS



Baker Fork Truck removing pallet-type crates of lapped ore from flat car.

The continuous operation of the Tin Processing Corporation's Texas City plant depends on the durable and reliable service of a fleet of Baker Trucks.

Ore arrives by vessel in 100 lb. bags, which are palletized at the wharf and loaded by a Baker Fork Truck onto flat cars, for transportation to the plant. Here another truck unloads and stores the pallet type crates.

As ore is needed, a fork truck carries a crate to the mixing hopper, placing it on a raised deck, from which bags are emptied into the hopper. After crushing and purification, ores go to the smelter for reduction to metal and casting into bars. Stacks of bars weighing 4,000 lbs. are carried by truck to storage and later to box cars for shipment.

Besides Baker Fork Trucks, the plant uses a Baker Hopper Truck with built-in scale for measuring batches going to smelting furnaces. The trucks are giving excellent service in spite of the difficult operating conditions caused by the relatively fine and gritty nature of the ore handled. Send for complete information.

BAKER INDUSTRIAL TRUCK DIVISION of The Baker-Raulang Co.
2163 WEST 25TH STREET • CLEVELAND 13, OHIO

Baker INDUSTRIAL TRUCKS

When inquiring specify CP 2780 — see handy form pages 2-3

1 MAN Does the work of a **CREW**

Faster! Cheaper! Better!

HOUGH Payloaders PUT THE BRAKES ON RISING COSTS

A Payloader more than pays its way every day — handling fertilizer, chemicals, salt, sand, clay, coal, or any bulk material — working inside of box cars, ship holds, bins — loading, carrying, and dumping — doing scores of jobs formerly requiring slow and costly hand labor.

An Eastern chemical plant unloads a box car of phosphate at the rate of 6 tons per hour saving 88 manhours and cutting unloading time in half; a large Southern fertilizer plant unloads 99½ tons of chemicals in 4 hours and 20 minutes. Remarkable records, but every day performances for a Payloader.

Get the complete story. Send today for Bulletin 164 on the Model HA Payloader.



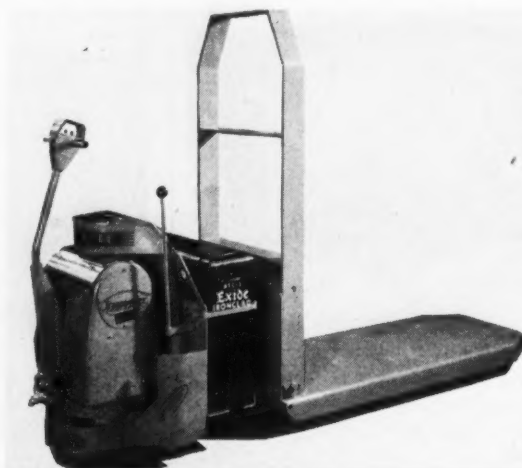
THE FRANK G. HOUGH CO
MATERIAL HANDLING EQUIPMENT SINCE 1920
626 Sunnyside Ave. • LIBERTYVILLE, ILL.

When inquiring specify CP 2781 — see handy form pages 2-3

Material Handling

Move High or Low Skids with Same Motorized Hand Truck

Hinged rack drops flat on truck platform to accommodate 5" differences in skid height



Motorized hand truck with hinged rack for handling high or low skid platforms

USES — Motorized hand truck for moving skids of widely varied heights. For use with both high and low skid platforms.

FEATURES — Enables processors and companies faced with constantly varying skid heights to meet their material handling problem with one piece of equipment. Adaptable to height variances as great as 5". Fast and maneuverable, with low operating cost.

DESCRIPTION — Unit features a hinged rack which stands upright at front of truck platform when low skids are being handled. When high skids are to be lifted, rack is dropped flat on platform, thereby giving added height to truck.

Both the platform and rack height can be designed to fit skid platforms in any particular plant. The model illustrated was engineered for F. N. Volkert & Co., Chicago paper folding and binding plant. This model required a 4" rack on a regulation 6" platform, thus handling skids of 7 or 8" with rack upright, and skids of 11 or 12" with rack lowered. Electric or foot lift.

AUTOMATIC TRANSPORTATION COMPANY, Dept. CP, 149 W. 87th St., Chicago, Ill.

When inquiring specify CP 2782 — see handy form pages 2-3

★

Magnetic Separators Demetalize Air-Borne, Free-Flowing or Bulky Materials, Liquids

High intensity permanent magnet separators for demetalizing liquids, air-borne materials, free-flowing or bulky products, are described and shown in a 4-page bulletin. Literature covers triple and single air-gap magnetic separators for spouts and chutes, also portable magnetic types for conveyor belts and picking tables.

A wide range of sizes is listed for meeting requirements of Mill Mutual and National Fire Protection Associa-

Here's Why SHIPPERS PREFER



CYLINDERS



DESIGN. There's a balanced relationship between diameter and overall height... in Hackney Ammonia Cylinders. They can be easily, quickly and safely handled—save floor space as they can be stored safely in a vertical position.

LIGHT WEIGHT AND STRENGTH. The Hackney Deep Drawing Process assures uniform sidewall thickness and eliminates all excess material. After fabrication, special heat-treating further improves physical properties. The result is a strong but lightweight cylinder.

APPEARANCE. The Hackney Seamless Cylinder will reflect the high quality of your product. The cold drawing process results in a smooth, eye-appealing finish.

Write for full details.



Pressed Steel Tank Company

Manufacturers of Hackney Products

1463 South 66th Street, Milwaukee 14 208 S. La Salle St., Room 2085, Chicago 4
1387 Vanderbilt Concourse Building, 368 Roosevelt Building, Los Angeles 14
New York 17 235 Hanna Bldg., Cleveland 15, Ohio

When inquiring specify CP 2783 — see handy form pages 2-3

DRUM DE-KINKER AND SEALER

Seals and straightens damaged steel drums quickly and easily.

Anyone can operate the tool to stop leakage right on the spot without removing the contents of the drum.

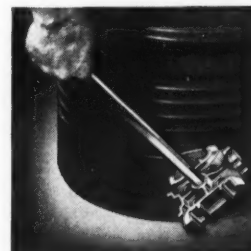
A few strokes of the

handle at the damage point does the trick.

The "DE-KINKER" handles 16, 18 and 20 gauge drums from 10 to 55 gallon.

Price \$17.50 F.O.B. Chicago

"ALL-PLUG" DRUM WRENCH



An ideal tool for taking out and putting in drain or filler plugs. No mutilation of plugs or operator's hands. Replaces the assortment of gadgets generally used for this purpose. Fits all types of plugs — foreign and domestic.

Price \$6.00 each
F.O.B. Chicago

(Discount of 5% on orders for five or more.)

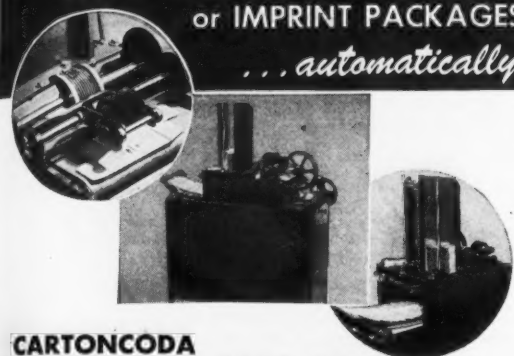
SCHINKER MFG. CO.

6514 So. Western Ave., Chicago 36, Ill.

When inquiring specify CP 2784 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

**NEW, EFFICIENT WAY to CODE-DATE
or IMPRINT PACKAGES
... automatically**



CARTONCODA

IMPRINTS 4500 PIECES PER HOUR

Place a stack of flat cartons in the CARTONCODA... flip the switch... and WHI-R-R-R! — in minutes the stack is returned with clean imprints of code-date, flavor, color, etc. Operator controlling CARTONCODA also may feed marked cartons to packaging machine. CARTONCODA saves time and labor wherever quantity coding or numbering is required. Makes up to 4500 small or large marks per hour on flat folding paste-end or tuck-end cartons, cards, tags, etc. Machine is adjustable to accommodate pieces of various sizes (from 1" x 3" to 12" x 22"). Has self-inking and interchangeable type features.

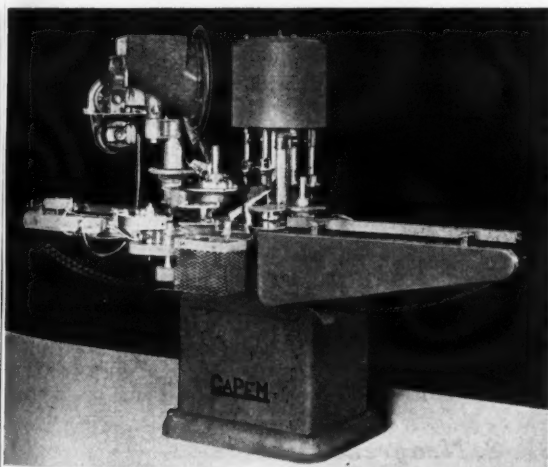
Write for complete details and specify exact nature of your imprinting problem.

ADOLPH GOTTSCHO, INC. MARKING EQUIPMENT

195 Duane St., New York 13, N. Y.

SEE OUR CATALOG IN 1948 SWEET'S FILE for PROCESS INDUSTRIES

When inquiring specify CP 2785 — see handy form pages 2-3



**CAPEM... APPLIES ANY
SCREW-CAP AT 2,000 TO 10,000
AN HOUR... DELIVERS A LEAK-
PROOF SEAL... AT LOW COST**

Available in 1, 2, 4, 6 and 8 spindle models

Write for prices

CONSOLIDATED PACKAGING MACHINERY CORP.
BUFFALO 13, N. Y.

When inquiring specify CP 2786 — see handy form pages 2-3

Material Handling

tion codes. Applicable to chemicals, minerals, free-flowing grains, meal, seeds, nut meats, candies, liquids, etc. Bulletin M-3.

THE BAUER BROS. COMPANY, Dept. CP, 1719 Sheridan Ave., Springfield, O.

When inquiring specify CP 2787 — see handy form pages 2-3

**No Special Coupling Links In
This Table-Top Chain**

*In 1½" pitch and any top plate width
from 3 to 7½"*

USES — For handling, bottles, cans, jars, etc. through cleaning, filling, capping, sealing and similar operations. **FEATURES** — Each link of the chain is the same, eliminating the need for special coupling links. The top plate, which is the carrying surface, also acts as the side bar of the link minimizing the number of parts and consequently the number of cavities, resulting in greater cleaning ease. All parts of the chain are manufactured to close tolerances and the top surface is ground after assembly insuring an unusually smooth surface which allows containers of all sizes to slide freely during transfer or stoppage.

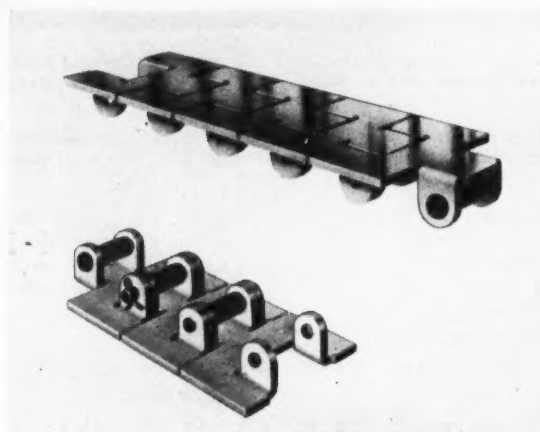


Table-top chain eliminates coupling links

DESCRIPTION — The flat top chain belt is available in 1½ inch pitch and any width of top plate from 3 to 7½ inches. It may be had in carbon steel with pins and bushings carburized and hardened or in Type 304-18-8 stainless steel with special alloy pins and bushings hardened to provide maximum durability.

This flat top chain will operate over Number 60 extended pitch sprockets or over extra width sprockets designed for use with this chain. The chain is so designed as to be interchangeable with existing flat top chain on most applications.

Also available are special chain made to requirements and a standard extended pitch roller chain made from Manufacturers Standard (A.S.A.) rollers, bushings, and pins in the 1½ inch, 2 inch, 2½ inch, and 3 inch pitches. In the heavier, long pitch engineering sizes practically all pitches and weights are offered up to maximum of 18 inch pitch.

WADE-MORRISON CO., Dept. CP, 18401 Shaker Blvd., Cleveland 20, Ohio.

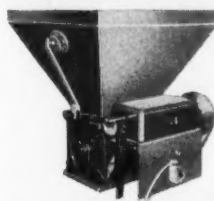
When inquiring specify CP 2788 — see handy form pages 2-3

**There's a Better Way to
Control Dry Flow, too!**

**OMEGA
ROTOLOCK FEEDER**

The Valve for Powder Dry Materials

The OMEGA Rotolock feeds very fine powder dry materials uniformly, continuously, dependably. It is ideally suited for controlling the flow of hydrated lime, activated carbon, clay, and similar materials which have a tendency to arch and flood through orifice type feeders.



OMEGA Rotolock Feeder with standard hopper and agitator. Infinite adjustment of feeding rate over a 100 to 1 range. Dust removers, dissolving chambers and automatic proportioning controls are available.

Write for Bulletin.

OMEGA MACHINE COMPANY

(DIVISION OF BUILDERS IRON FOUNDRY)

41 CODDING ST., PROVIDENCE 1, R. I.

When inquiring specify CP 2789 — see handy form pages 2-3



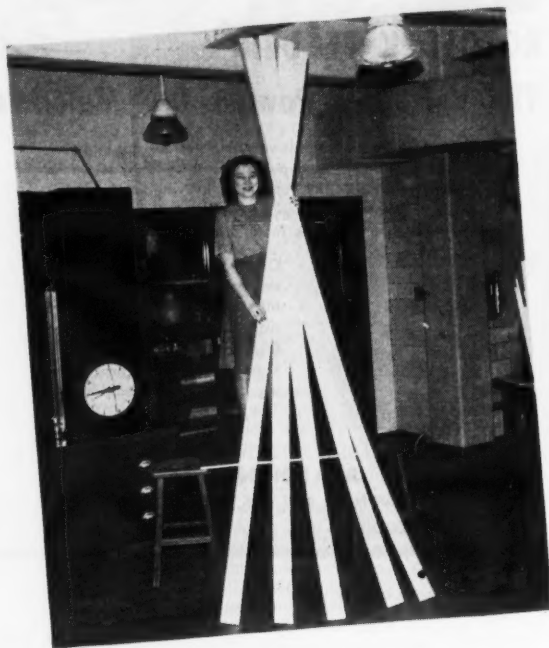
D. W. HAERING & CO., Inc.

GENERAL OFFICES:

205 West Wacker Drive, Chicago 6, Ill.

When inquiring specify CP 2790 — see handy form pages 2-3

Formed Plastic Core Material Combines Insulation and Structural Strength



Finds applications in refrigerators, luggage, construction panels, furniture, instrument cases and light toys



"Strux" core supports aluminum in aileron tab. Opening reveals core material that is easily curved to conform to shape of section to be supported

Strips of "Strux" plastic which are lighter than cork can be cut and used as core panels in refrigeration units, structural panels and toys

USES — Its suitability for use as strong, light-weight cores of airplane floor panels, tail assemblies and wing structures suggest other applications where strength and insulating properties are important. These include refrigerators, luggage, sections of prefabricated houses, panels for railroad cars and refrigerated trucks, frozen food boxes, instrument boxes, furniture and toys.

FEATURES — Lighter than cork, the plastic combines insulation against heat and cold with great structural strength when bonded between two sheets of metal, wood or plastic. The heat resistance of this material, named, "Strux", is such that thermosetting resins can be used to cement it. This is important to its use in laminations for panels. "Strux" may be bonded with ease to metal, wood, or another plastic. Aluminum, magnesium, steel, and stainless steel are among the metals that may be bonded to it. It may be tooled or shaped with any woodworking machinery.

DESCRIPTION — "Strux" cellular cellulose acetate is a core material produced by extrusion. It is the outgrowth of a chance observation in a Du Pont plastics plant. A cold slug of cellulose acetate, clogging a molding machine, was heated so that it could be dislodged by the pressure of the ram. An unorientated, multicellular form of the plastic issued from the machine. Today "Strux" is manufactured by heating a mixture of cellulose acetate and other materials under pressure. Releasing the pressure foams the material into a mass of bubbles pin-point size. The mass becomes hard when chilled as it comes from the machine.

The plastic has excellent compressive strength. When

bonded between two panels of metal, wood or another plastic, it will not be compressed or squeezed except under extreme pressure. Furthermore, the thin sheets of metal, wood or plastic, which would themselves ordinarily bend under load are effectively supported by this strong core of plastic.

Non-Volatile Plasticizer Pours Easily; Incorporates Rapidly

Compatible with natural, GR-S, Neoprene rubbers in making wide range of products

USES — Dutrex 7 is a hydrocarbon plasticizer especially compounded for the rubber industry and designed to provide excellent processing characteristics and good retention of physical properties combined with ease of handling. Its use is suggested in the following types of rubber products: (1) Tire carcasses of natural rubber or GR-S where low modulus and low heat build-up are important; (2) In footwear compounds of both GR-S and natural rubber where smooth processing or resilience is desired; (3) In many types of mechanical goods where softness, good processing and resilience are required; (4) In neoprene compounds, particularly in

friction and coating stocks, and in soft stocks requiring high loading of plasticizer.

FEATURES — The following characteristics distinguish Dutrex 7 from ordinary light process oils and from heavy resinous or asphaltic plasticizers: (1) Permanent. Dutrex 7 is of sufficient high molecular weight to be substantially non-volatile under ordinary conditions; hence there is no significant loss of plasticizer during compounding or on aging. (2) Dutrex 7 is fully compatible with natural rubber, GR-S and Neoprene. (3) Has shown up to twice as rapid incorporation on the

New Materials

The specific gravity of this material ranges from 0.07 to 0.12, depending upon the composition and porosity. It is available in the form of extruded strips of rectangular cross-section and four ranges of density (see illustration). The density range is between four and eight pounds per cubic foot.

The extruded strip is prepared for use by means of regular woodworking equipment. Strips as thin as 0.100 inch have been cut from thicker strips with hand-saws. Strips are laminated to metal, wood or fabric faces to yield a very light panel with good structural strength. The two faces should be of the same material and of the same thickness to prevent setting-up unbalanced stresses in service.

The gluing of "Strux" to various faces is accomplished by adhesives of the phenol—, melamine—, resorcinol—, and urea-formaldehyde types. Solvents which attack the cellulose acetate and which tend to break down the cell structure must be avoided in using an adhesive. If a face is laminated on one side, the material can be bent with the laminated face on the convex part of the curve. By a suitable method of kerfing, a curved section can be formed at room temperature.

Present availability is somewhat limited as full production has not yet been attained.

E. I. du PONT de NEMOURS and COMPANY, INC., (Plastics Division), Dept. CP, 626 Schuyler Ave., Arlington, N. J.

When inquiring specify CP 2791 — see handy form pages 2-3

mill as, for example, a common light process oil. (4) Low batch temperature, high plasticity and smooth milling. (5) Resilient vulcanizates — low heat build-ups. (6) Easily handled. (7) Uniform quality.

DESCRIPTION — Dutrex 7 is carefully controlled not only as to physical and analytical properties but also by actual compounding tests. The material is approved for sale when tests have shown it to conform to establish standards.

In color, Dutrex is greenish-brown. Odor is very slight. Specific gravity, 20/4 1.0; viscosity at 100° F. 956 cs (4410 S.U.S.); viscosity at 210° F. 18.8 cs. (93 S.U.S.); flash point (open cup) ... 440° F.

A brochure describes tests supporting the conclusions cited here. It also discusses the general effects of adding Dutrex 7 to a basic GR-S recipe as well as providing examples of the use of Dutrex 7 in representative types of GR-S, Neoprene and natural rubber. Compounding and test procedures are also described.

SHELL OIL CO., INC., Dept. CP, 50 West 50th St., New York 20, N. Y.

When inquiring specify CP 2792 — see handy form pages 2-3

★

Concentrated Prevulcanized Buna S Latex-2500 Lbs. Tensile Strength

Latex of GR-S type co-polymer treated so as,
on drying, to deposit a vulcanized film

USES — This concentrated prevulcanized Buna S Latex (B-1720) has a wide range of applications among which are the following: (1) Back coating of rugs and fabrics to impart non-slip and fibre bending characteristics; (2) Coating and impregnating of fabric paper and wadding for strength, water resistance and base for further coating; (3) Preparation of molds utilizing properties of flexibility and freedom from further heat treatments; (4) Dipped goods where deposition of film is complete on drying; (5) Adhesive for paper, fabric and leather where bond is improved by film deposit of cured Buna S.

FEATURES — Dried film tensile strength — 2500 lbs. per square inch minimum. Aging — Compounds made with B-1720 should produce excellent aging results when antioxidant is used. Even without antioxidant, results are better than those with many similar compounds made with unvulcanized GR-S.

DESCRIPTION — a water dispersion or latex of a GR-S type copolymer, treated so as to deposit on drying a vulcanized film. It contains no antioxidants but such a dispersion can be supplied separately. This can be mixed into the compound by the user. Also, formulas especially compounded with an antioxidant can be furnished.

The compound may be modified to yield various physical characteristics by addition of suitable dispersions.

Viscosity is 1700 cps. (Brookfield —20 rpm —Spindle Number 3). Dried film ultimate elongation — 700-800%. Specific gravity 1.025; weight per gallon 8.54 lbs. solids content 53 (plus or minus) 0.5%; pH value 9.8-10.2. Color, cream white.

UNION BAY STATE CHEMICAL CO., Dept. CP, 50 Harvard St., Cambridge 42, Mass.

When inquiring specify CP 2793 — see handy form pages 2-3

OCTOBER, 1947



Aluminum Chloride
Ferric Chloride
Zinc Chloride
Supported Catalysts

From

POROCEL RESEARCH

Our laboratory, intensive work on the development of low-priced supported catalysts goes on incessantly. Rating much of the effort has been a group of metallic chlorides— AlCl_3 , FeCl_3 and ZnCl_2 . These valuable catalytic chemicals, impregnated on granules of activated bauxite, now are available to industry.

Present commercial uses are many—innumerable more are suggested in the technical literature. Principal applications are:

Friedel-Crafts reactions. Of particular value here is the activity variation represented in the group, ranging from ZnCl_2 's mild effect to AlCl_3 's highly active promotion.

Polymerization catalysts for diverse uses in this type of reaction.

Isomerization and Alkylation catalysts. As examples, AlCl_3 in the production of isomerized hydrocarbons as aviation gasoline components— ZnCl_2 for making such specialty products as butyl and octyl phenols.

Dehydration of alcohols and esters.

Chlorination of olefinic hydrocarbons.

Condensation of aromatic aldehydes.

Refining and Desulfurization of gasolines.

For all these reactions, your attention is drawn to the advantages of our catalysts: ruggedness—purity—uniformity—long life.

Perhaps one (or more) of these materials is a part of your development or production program. If so, we'll gladly send, at no obligation, samples for evaluation. Let's team up towards an early solution of your problem.

Attapulugus Clay Company (Exclusive Sales Agent) Dept. E, West Washington Square, Philadelphia 5, Pa.



ACTIVATED BAUXITES • SUPPORTED CATALYSTS • CATALYST CARRIERS • ADSORBENTS • DESICCANTS

When inquiring specify CP 2794 . . . see information request blank, pgs. 2-3

Reagent Quality

TANK CAR LOTS



UTILIZATION OF ANSUL **CH₃Cl**

These examples illustrate a few specific applications for Ansul Methyl Chloride in research laboratory and industrial practices:

GRIGNARD..... $\text{CH}_3\text{Cl} + \text{Mg} \rightarrow \text{CH}_3\text{MgCl}$

QUATERNARIES.... $\text{CH}_3\text{Cl} + \text{RNH}_2 \rightarrow \left[\begin{array}{c} \text{R} \\ | \\ \text{N} \\ | \\ \text{CH}_3 \end{array} \right]^+ \text{Cl}^-$

ALIPHATIC ETHERS. $\text{CH}_3\text{Cl} + \text{NaOR} \rightarrow \text{CH}_3\text{O-R} + \text{NaCl}$

AROMATIC ETHERS. $\text{CH}_3\text{Cl} + \text{C}_6\text{H}_5\text{ONa} \rightarrow \text{C}_6\text{H}_5\text{OCH}_3 + \text{NaCl}$

ALIPHATIC HYDROCARBONS... $\text{CH}_3\text{Cl} + \text{RNa} \rightarrow \text{CH}_3\text{-R} + \text{NaCl}$

AROMATIC HYDROCARBONS... $\text{CH}_3\text{Cl} + \text{Na} + \text{C}_6\text{H}_5\text{Cl} \rightarrow \text{C}_6\text{H}_5\text{CH}_3 + \text{NaCl}$

... $\text{CH}_3\text{Cl} + \text{C}_6\text{H}_5\text{Cl} \xrightarrow{\text{AlCl}_3} \text{C}_6\text{H}_5\text{CH}_3 + \text{HCl}$

SILICONES..... $\text{SiCl}_4 + 2\text{CH}_3\text{MgCl} \rightarrow (\text{CH}_3)_2\text{SiCl}_2 + 2\text{MgCl}_2$

In addition Ansul Liquid Methyl Chloride is being currently used as a low temperature solvent • propellant solvent • extractant • refrigerant • and in other laboratory and industrial processes.

Methyl Chloride is a low priced chemical available in tank cars and large and small cylinders.

PHYSICAL PROPERTIES	
Chemical formula.....	CH_3Cl
Molecular weight.....	50.491
Color (gas or liquid).....	Colorless
Odor.....	Ethereal, non-irritating
Melting point.....	$-144^\circ \text{F.} (-97.8^\circ \text{C.})$
Boiling point.....	$-10.65^\circ \text{F.} (-23.7^\circ \text{C.})$
Critical Temperature.....	$249.4^\circ \text{F.} (121.3^\circ \text{C.})$
Critical pressure.....	960.2 lbs. per sq. in. abs.
Solubility.....	Methyl chloride in water—1 to 4 volumes methyl chloride vapor in 1 volume of water at ordinary temperatures and atmospheric pressure—methyl chloride in alcohol—readily soluble.
Specific gravity of liquid.....	.909

*REG. U. S. PAT. OFF.

For your SULFUR DIOXIDE applications... Use ANSUL SULFUR DIOXIDE

ANSUL CHEMICAL COMPANY

INDUSTRIAL CHEMICALS DIVISION, MARINETTE, WIS.
60 E. 42nd St., New York — 535 Chestnut St., Philadelphia

When inquiring specify CP 2795 — see handy form pages 2-3

Materials

Binder Forms High Solids Coatings

Suitable for brush-roll, air-brush coaters

USES — As dextrin binder for coated papers. Performs well in machine coating and at same time is suitable for use on brush roll or air-brush coaters, when high solids coatings are desired.

FEATURES — Ability to form very high solids coatings with low yield values. Distinctive properties include high clay-carrying strength and high water retention, as well as good viscosity characteristics and dispersing power for pigments.

DESCRIPTION — This binder is named Nadex 344. For use primarily on coaters other than machine types, a chlorinated starch product, — Flokote, is available. Flokote is also used for calendar sizing and in the manufacture of such widely different grades of stock as coated book paper, coated board and wallpaper.

NATIONAL STARCH PRODUCTS, INC., Dept. CP, 270 Madison Ave., New York 16, N. Y.

When inquiring specify CP 2796 — see handy form pages 2-3

Modifier Improves Natural Drying Oils

Reactive cyclic diolefin source of new products such as the insecticide, chlordane

USES — Dicyclopentadiene is used as a modifier and extender of natural drying oils such as soya and linseed. Although dicyclopentadiene is relatively new, several commercial products now use this material.

FEATURES — Oils modified with this material are in many respects superior to the originals. This diene has pronounced reactivity with halogens, halogen acids, and aldehydes.

DESCRIPTION — A reactive cyclic diolephin currently available in commercial quantities. It can be thermally or catalytically polymerized to a useful resin of unusual properties. Under certain conditions it easily depolymerizes to cyclopentadiene.

PHILLIPS PETROLEUM CO., Dept. CP, Bartlesville, Okla.

When inquiring specify CP 2797 — see handy form pages 2-3

B. F. Goodrich Chemical Company

has for sale these GOOD-RITE chemicals

In Commercial Quantities

Phenyl B Naphthyl Amine • Distilled • Commercial

Mixed Mono-and Diheptyl Diphenyl Amines

Isopropoxy Diphenyl Amine

p Hydroxy Diphenyl Amine

N-Nitroso Diphenyl Amine

Diphenyl p Phenylene Diamine

Di B Naphthyl p Phenylene Diamine

Monobenzyl Ether of Hydroquinone

Di Isopropyl Dixanthogen

Mixed Ethyl and Dimethyl Mercaptothiazoles

Mixed Aliphatic Thiazyl Disulfides

Polymerized Trimethyl Dihydro Quinoline

In Pilot Plant Quantities

Dibenzyl Ether of Hydroquinone

For additional information please write

B. F. Goodrich Chemical Company A DIVISION OF THE B. F. GOODRICH COMPANY
Department CG-10, Rose Building, Cleveland 15, Ohio

When inquiring specify CP 2798 — see handy form pages 2-3

Cut Corrosion Costs with Performance-Proved Prufcoat

After exhaustive comparative tests, one of America's largest chemical companies reports: "Prufcoat has proven to be superior to any other protective coating we have tested."

Another large user writes: "Prufcoat is the only material we have found to withstand strong caustic, acid and beer... has reduced our painting maintenance 70%."

Cut your corrosion costs with performance-proved Prufcoat... the protective coating that gives more protection at lower cost than any other air-drying metal and masonry paint.

Write for descriptive bulletin

Prufcoat Laboratories, Inc.

63 Main Street, Cambridge, Mass.
50 East 42nd Street, New York, N. Y.

SPECIFICATIONS

- ✓ Acid-Proof
- ✓ Alkali-Proof
- ✓ Alcohol-Proof
- ✓ Oil-Proof
- ✓ Water-Proof
- ✓ Flame-Proof

Applies like paint to masonry, metal, wood.

PRUFCOAT

PROTECTIVE COATING

When inquiring specify CP 2799 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

Thiophene Compounds Available for Commercial Applications

2-chlorothiophene and 2-bromothiophene promising as chemical intermediates

USES — These quite similar chemicals have been introduced in order to make available for chemical synthesis the two most commonly used and reactive halides. Large volume commercial uses of these chemicals have not yet been developed and they are offered with the expectation that research and experimental work will develop such uses.

The most promising application for these chemicals is that of a chemical intermediate in the manufacture of various fine chemicals such as those used in the pharmaceutical, perfume and flavoring fields. Lower prices anticipated under volume production will permit their employment in larger volume fields such as synthetic resins, petroleum, rubber, synthetic detergents.

FEATURES — Much of the recent experimental work with thiophene compounds has involved synthesis of thiophene analogs of compounds containing a benzene ring, in which thiophene ring replaces the benzene ring.

These thiophene analogs have, in many cases, been shown to possess enhanced therapeutical, chemical or physical properties as compared with the parent benzene compounds. Both 2-chlorothiophene and 2-bromothiophene are of importance in this new field of industrial utilization of thiophene in that they are two of the more useful intermediates for synthesis of other thiophene compounds.

DESCRIPTION — Although the chemistry of thiophene and its derivatives is fairly well known, few attempts have been made at commercial utilization due to the high cost of the basic raw material, thiophene. This situation has changed with the availability of thiophene at relatively low cost.

Bromothiophene readily forms Grignard reactants which are highly versatile chemical intermediates. 2-chlorothiophene forms a Grignard reagent with some difficulty, but a special process has been worked out by the Cincinnati Milling Machine Co. to permit the commercial preparation of these Grignard compounds.

A bulletin is available that gives chemical characteristics of these chemicals.

MICHIGAN CHEMICAL CORP., Dept. CP, Saint Louis, Mich.

When inquiring specify CP 2800 — see handy form pages 2-3

★

Handbook Tabulates Physical Properties of 175 Synthetic Organic Chemicals

"Physical Properties of Synthetic Organic Chemicals" is a 12-page revised edition, designed as a condensed guide for users of organic chemicals. Information concerning applications and physical properties for more than 175 synthetic organic chemicals is contained, in tabular form.

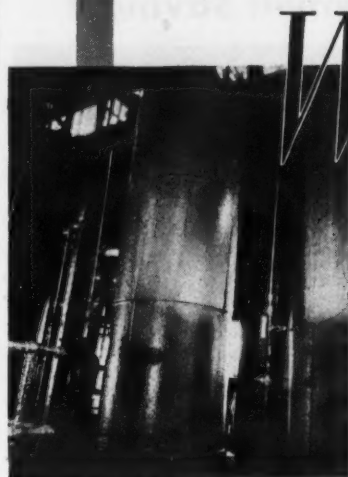
Products include acetals, acids, alcohols, aldehydes, anhydrides, chlorine compounds, ketones, esters, ethers, plasticizers, wetting agents, and others. Form 6136.

CARBIDE and CARBON CHEMICALS CORPORATION, Dept. CP, 30 E. 42nd St., New York 17, N. Y.

When inquiring specify CP 2801 — see handy form pages 2-3

OCTOBER, 1947

When Your Reactions Require Chlortoluene Derivatives ... Choose From These Hooker Compounds



Chlorinating towers like these are important factors in the production of Hooker Chlortoluenes

HERE chlortoluenes are involved in your reactions, you can be sure of high purity by selecting them from Hooker chlortoluene compounds and derivatives. Using selected raw materials of high purity and high quality chlorine, Hooker is able to offer you chlortoluenes and chlortoluene derivatives of exceptionally high purity. Because Hooker has available a number of different chemicals with the same reactive radicals, you are not limited in your choice but can pick the intermediate that best meets your needs from the standpoint of chemical activity, purity, ease of handling and costs.

Listed below are a few of these chlortoluene derivatives—a good source for the benzyl, benzal and benzoyl groups as well as others. Technical Data Sheets on each and samples are available when requested on your business letterhead. Bulletin 320, also available on request, gives some of the reactions of Hooker chlortoluenes.

PRODUCT	FORMULA	DESCRIPTION	REACTIONS
Monochlortoluene	$\text{CH}_3\text{C}_6\text{H}_4\text{Cl}$	Clear, colorless to straw colored liquid. A mixture of ortho and para isomers.	Reacts to form chlorbenzyl, chlorbenzal, chlorbenzenyl, and chlorbenzoyl compounds.
Benzyl Chloride	$\text{C}_6\text{H}_5\text{CH}_2\text{Cl}$	Clear, colorless to light yellow liquid.	Source of benzyl group. In Friedel-Crafts reactions. For production of mixed ethers, esters. Reacts with alcohols, anilines, sodium cyanide, sodium sulfhydrate, sodium sulfide.
Benzoyl Chloride	$\text{C}_6\text{H}_5\text{COCl}$	Clear, colorless liquid.	To introduce benzoyl group into organic compounds. Reacts with alcohol to form esters. To form ketones in Friedel-Crafts reactions. Reacts with ammonia, amines and benzene.
Benzoic Acid	$\text{C}_6\text{H}_5\text{COOH}$	White crystalline solid in powdered form.	As a source of the benzoyl group.
Benzoate of Soda	$\text{C}_6\text{H}_5\text{COONa}$	White crystalline solid in flake or powdered form.	As a source of the benzoyl group.

OTHER HOOKER CHLORTOLUENE DERIVATIVES

Benzal Chloride	Benzoic Anhydride	Benzotrichloride
Benzyl Alcohol	Benzyl Thiocyanate	

HOOKER ELECTROCHEMICAL COMPANY

15 Forty-Seventh St., Niagara Falls, N. Y.
New York, N. Y. Tacoma, Wash. Wilmington, Calif.

Caustic Soda Chlorine Paradichlorobenzene Muriatic Acid

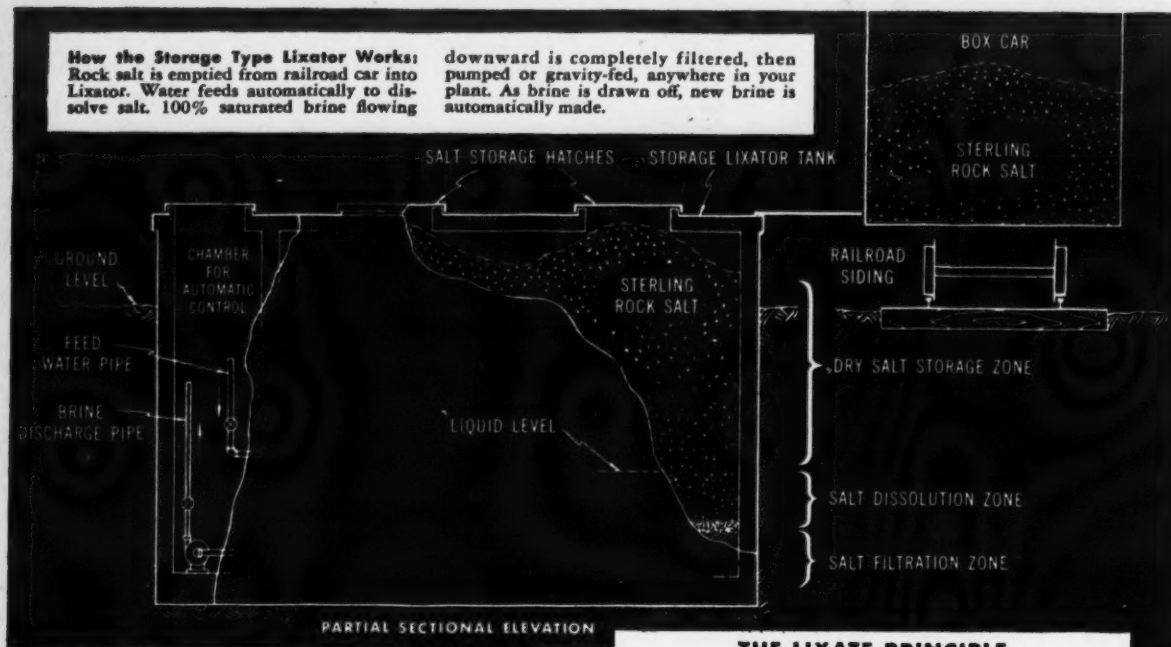
HOOKER CHEMICALS

7-486

When inquiring specify CP 2802 . . . see information request blank, pgs. 2-3

For a Continuous Supply of Clean, Crystal-Clear, 100% Saturated BRINE IN GREAT VOLUME

The Storage Type Lixator Provides Maximum Savings!

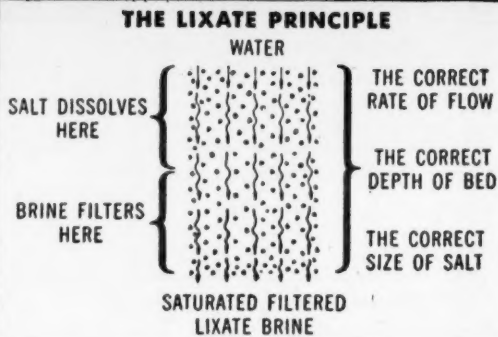


Do you use brine in large quantities? Then we urge you to consider the important economic advantages of the Storage Type Lixator!

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the Storage Type Lixator to fully meet your specific brine requirements. A representative thoroughly familiar with the uses of brine in your own industrial field will gladly give you complete information. Inquiries are cordially invited.

For more information about the Storage Type Lixator, simply fill in and mail this coupon to:

INTERNATIONAL SALT COMPANY, INC.
Dept. CP-10, Scranton, Pa.

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Firm _____
Street _____
City _____ State _____

The LIXATE Process
Reg. U. S. Pat. Off.
for making brine
INTERNATIONAL SALT COMPANY, INC.
Scranton, Pa.

Materials

Glycol Has Unusual Solubility for Wide Variety of Resins

Experimental quantities available; for use in soaps, detergents, oils, inks

USES — This glycol is expected to have wide industrial use in soaps, detergents, softeners and penetrants; in oils, hydraulic fluids, greases, lubricating oils; also as a plasticizer and coupling agent for rosin solutions and printing; synthesis of various derivatives useful as plasticizers. Its use as a modifying agent in the alkyl resin field is also suggested.

FEATURES — Containing one primary and one secondary hydroxy group, this glycol has an unusual solubility for a wide variety of resins and is miscible with most common organic solvents.

DESCRIPTION — Methyl-pentanediol (2-methyl-1,3-pentanediol) is a dihydric alcohol with an unusual structure. Its high boiling point — 215° C — plus a limited solubility in water (10 parts glycol in 100 parts water) give it a combination of properties that are distinctive in connection with the applications cited.

CELANESE CHEMICAL CORP., (Div. Celanese Corp.) Dept. CP, New York, N. Y.

When inquiring specify CP 2804 — see handy form pages 2-3

★

Vinylite Resin VMCH Adheres Well Where No Bake is Used

May be applied to clean metals, wood, concrete, paper or cloth

USES — Vinylite resin VMCH is one of a large family, each member of which has specific function in the plastics field. Description of its uses invites comparison with the familiar VYHH resin. VMCH develops excellent adhesion in air-dried coatings on relatively smooth, impervious surfaces. Such surfaces have presented a difficult problem in air-dried coatings containing vinyl chloride-acetate resins. Some idea of the usefulness is gained from the following tabulation: Adhesion to clean steel, VMCH is very good; VMCH poor when both are baked at 350 degrees F. VMCH adheres well, also, on cadmium, brass, copper. Over zinc, some loss of adhesion occurs occasionally by reason of excessive reactivity. On wood, adhesion is only slightly better than VYHH. VMCH adheres well to concrete (better than VYHH). The foregoing also applies to paper and cloth. Suggested uses for resin VMCH would include air-dry maintenance coatings for chemical resistance, underwater paints, metal decorating finishes.

FEATURES — This copolymer, by virtue of its carboxyl groups, develops excellent adhesion to clean surfaces after short air-drying period or after a low temperature bake (200-280 degrees F.) So effective is VMCH in this respect that it may be blended with the other copolymer resins to promote better adhesion of the system. Resin VMCH has a slightly better tolerance for waxes than most other Vinylite copolymer resins. This feature is desirable because it makes handling of blends of resin VMCH and wax easier without interfering with the moisture resistance of the coating.

DESCRIPTION — Resin VMCH is a vinyl chloride-acetate resin with a vinyl chloride to vinyl acetate ratio

When inquiring specify CP 2803 . . . see information request blank, pgs. 2-3

Materials

of about 86 to 13. Maleic acid amounting to about 1 per cent of the total composition is conjointly polymerized into the resin. Intrinsic viscosity is also in the range, 0.52-0.54. Like resin VYHH, VMCH shows thermal breakdown with zinc or iron pigments at bakes over 280 degrees F. At room temperature resin VYHH is non-reactive, but resin VMCH reacts with a basic pigment to cause gelation. Certain properties should be recognized in the formulation of coatings containing resin VMCH. These are chiefly concerned with pigmentation and cleanliness of surfaces to be coated.

Because of the presence of unreacted carboxyl groups in the resin, there is a tendency for reaction to occur between the resin and basic pigments. This results in the formation of a gel which cannot be broken down by mechanical means. Pigments which cause this difficulty are usually avoided in formulation, but when it is desired that they be used, certain anti-gelling agents, such as n-butyl acid phosphate, ammonia, maleic acid, diphenyl guanidine, and others may be added to delay reactivity.

On the other hand this reactivity may be used to advantage for some applications, such as "Solvent Resistant Coatings."

Dispersion of pigments in resin VMCH is not advised in any case where there is a possibility of reactivity occurring. Instead it is suggested that the pigments be ground with resin VYHH, then mixed with a solution of the resin VMCH.

BAKELITE CORP., Dept. CP, 300 Madison Ave., New York 17, N. Y.

When inquiring specify CP 2807 — see handy form pages 2-3

How to make Shipping Costs Drop

The big factor in running up shipping costs is damage to shipments in transit. Time, material and labor are lost. Pack-

ing materials are wasted. And, you run the risk of losing a good customer.

A few feet of Signode Steel Strapping on every shipping pack helps reduce shipping losses—and lowers costs. It adds strength and rigidity to the container, and increases resistance to internal and external pressures.

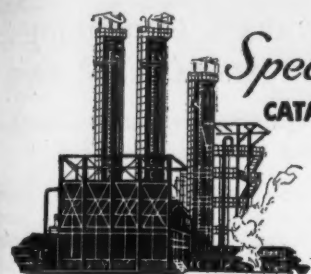
May we send a trained Signode representative to tell you about Signode's System of Planned Protection?



Using steel strapping now? A Signode Deluxe model 9B portable reel can speed strapping operations.

SIGNODE STEEL STRAPPING COMPANY
2638 N. Western Avenue
Chicago 47, Ill.

When inquiring specify CP 2808 — see handy form pages 2-3



Specified for CATALYTIC SUPPORTS

ALUMDUM:
Grain
Pellets
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Tubes
Spheres

Alumdum Catalytic supports can be furnished both in the form of pellets, tubes and spheres manufactured to specified size and shape and in the form grain and crushed aggregates. Aggregates made with controlled porosity and pore size have been used as catalytic agents as well as carriers.



NORTON COMPANY
WORCESTER 6, MASS.

When inquiring specify CP 2805 — see handy form pages 2-3



**INDUSTRIAL
NoDrip**

**COVER PIPES
TANKS, WALLS**

Anyone can brush, trowel or spray NoDrip on any clean, dry surface. Goes on like plaster, forms a seamless, protective coating. **STOPS CONDENSATION DRIP!** NoDrip keeps equipment and floors safe and dry; prevents corrosion of metal and prolongs its life. Acid, alkali and brine resistant. Comes in 1, 5 and 55 gal. drums, ready for use.

TRY NoDRIP
Apply NoDrip to a small area, compare the results with uncovered portions.

Send for free NoDrip Handbook

J. W. MORTELL CO. 530 Burch St., Kenosha, Illinois

When inquiring specify CP 2806 — see handy form pages 2-3

OCTOBER, 1947



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Sheets on any product
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plication to your problem.

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**UNION BAY STATE
Chemical Company Inc.**

50 HARVARD STREET, CAMBRIDGE 42, MASS.

When inquiring specify CP 2809 — see handy form pages 2-3

Page 27

Airco Nitrogen gives positive Protection against Air Damage

For desecrating, processing, storing and packaging fats and oils, in the packaging of dehydrated foods, and to provide an inert atmosphere, use Airco Nitrogen. It gives positive protection to practically any material susceptible to oxidation and corrosion by air.

For more than a quarter century Airco has been one of the world's leading producers and purifiers of nitrogen — as well as other atmospheric gases: oxygen, argon, helium, neon, krypton, and xenon . . . all

known throughout industry for their high purity, unvarying uniformity and dependable qualities. This uniformity and adherence to specifications of Airco Nitrogen are definite factors contributing to its satisfactory use.

To meet your requirements, Airco can supply nitrogen of specific types. Airco Nitrogen is supplied in

224 cu. ft. cylinders, or, if your plant is equipped with an internal pipeline, delivery in bulk may be made in Airco trailers. For further information address: Air Reduction, General Offices, 60 East 42nd Street, New York 17, N. Y. In Texas: Magnolia Airco Gas Products Company, General Offices, Houston 1, Texas.



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HEADQUARTERS FOR OXYGEN, ACETYLENE AND OTHER GASES...CARBIDE...GAS WELDING AND CUTTING APPARATUS AND SUPPLIES...ARC WELDERS, ELECTRODES AND ACCESSORIES

When inquiring specify CP 2810 . . . see information request blank, pgs. 2-3



CHEMICAL SPECIALTIES

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DIBUTYL TARTRATE BUTYL STEARATE BUTYL OLEATE
BUTYL "CELLOSOLVE"* STEARATE METHYL "CELLOSOLVE" OLEATE

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FATTY ACID ESTERS

STEARATES PALMITATES OLEATES RICINOLEATES LAURATES

for the

Textile, Cosmetic, Pharmaceutical, Petroleum, Plastic and Allied Industries

KESSLER CHEMICAL CO., INC.

ESTABLISHED 1921

STATE ROAD and COTTMAN AVE., PHILADELPHIA 35, PA.

When inquiring specify CP 2811 . . . see information request blank, pgs. 2-3

Materials

Preserves Products Containing Gums, Carbohydrates, Fats, Oils

"Parasepts" guard against deterioration through fungus and bacterial action

USES — As preservatives for products containing gums, glues, mucilage, carbohydrates, fats and oils and many other materials which are subject to deterioration through mold growths, fungus formation or yeast and bacterial action. Under certain conditions they can be used to provide antiseptic properties in lotions, creams and powders. These neutral esters of parahydroxybenzoic acid are identified by the name "Parasepts."

FEATURES — The different solubilities and melting ranges of the various "Parasepts" afford a range of applications, depending upon the kinds and uses of materials in which they are incorporated. The "Parasepts" can be dissolved directly in oil products. Their soluble sodium salts permit their introduction into aqueous vehicles without using alcohol or heating.

The salts are probably most useful in the case of products which are acid in nature. The acid liberates the "Parasept" from its salt, and the free "Parasept" is a more effective preservative than the salt.

DESCRIPTION — The "Parasepts" are fine, white powders with a slight characteristic odor and taste. Forms available: Methyl "Parasept," Ethyl "Parasept," Propyl "Parasept," Butyl "Parasept," Benzyl "Parasept," Methyl Parahydroxybenzoate (Methylpabaren) and Propyl Parahydroxybenzoate (Propylpabaren) have recently been included in the United States Pharmacopoeia, Thirteenth Revision. Methyl "Parasept," pure is equivalent to methyl parahydroxybenzoate, NF VII. Technical grades are also available.

Data sheet and monograph provide a summary of the uses, toxicity, and physical characteristics of Methyl, Ethyl, Propyl and Butyl "Parasepts."

HEYDEN CHEMICAL CORP., Dept. CP, Garfield, N. J.

When inquiring specify CP 2812 — see handy form pages 2-3

Room-Heat Assembly Glue

Shear-Tests at 2800 psi.

Resin adhesive, used with hardener, glues wood, sheet asbestos, foamed glass, etc.

USES — Resin adhesive for room-temperature assembly or secondary gluing. For gluing hard or soft wood, sheet asbestos, foamed glass, phenolic laminates, vulcanized fiber, etc.

FEATURES — Durable and boilproof.

DESCRIPTION — Sets at temperatures of 70° F. or higher. Resorcinol-type adhesive. Durez 13793 is a water-soluble liquid resin with more than six months' storage life in sealed containers.

It is used with powdered hardener, Durez 12689. Also will carry extra filler and water without impairing its bonding qualities. Meets various army-navy wartime requirements.

Where immediate application of pressure is not practicable or desirable, manufacturer states that tests indicate maximum open assembly time of one hour, and closed assembly time of 2½ hours at 70° F., or 45

CHEMICAL PROCESSING Preview

Materials

minutes open assembly and $1\frac{3}{4}$ hours closed assembly at 90° F. Maple block shear tests at these assembly times are said to reveal at least 2800 psi.

DUREZ PLASTICS & CHEMICALS, INC., Dept. CP, North Tonawanda, N. Y.

When inquiring specify CP 2813 — see handy form pages 2-3

Vinyl Cyclohexene Now Produced In Commercial Quantities

Two isolated double bonds of unconjugated diolefinic hydrocarbons points of attack for chemical reactions

USES — While applications are still in the development stage, the material offers interesting possibilities to producers of synthetic organic chemicals.

FEATURES — Chemical structure of the compound indicates that it can undergo a wide variety of chemical reactions.

DESCRIPTION — Vinyl cyclohexene is an unconjugated diolefinic hydrocarbon. The two isolated double bonds offer interesting points of attack for further chemical reactions. The material does not polymerize readily, and therefore may be stored under normal conditions. The commercial product contains no inhibitor.

CHEMICAL DIV. — KOPPERS CO., Dept. CP, Koppers Bldg., Pittsburgh, Pa.

When inquiring specify CP 2814 — see handy form pages 2-3

Plastic Floor Tile Is Decorative, Durable

Vinyl compound, bonded to impregnated cork base, resists corrosives

USES — Heavy duty plastic floor tile and special water, acid and alkali-resistant synthetic resinous cement for food or chemical processing plants.

FEATURES — Resistant to acids, alkalis, oils, grease, abrasion and any type cleaning fluids. A cigarette can burn its length without damaging the surface. Constantly shiny surface requires no waxing, is non-slippery even when wet. Moisture will not rot. Won't crack or harden with age.

Decorative. Sound-absorbing. Flexible. Durable and easy-bonding. Stain-proof and washable. Laminated construction gives cushioned action for greater quietness and wear-resistance.

DESCRIPTION — Tile is made from genuine vinyl compound. Adhesive is synthetic resinous cement, although for normal use ordinary linoleum paste is satisfactory. Handled same as asphalt tile and rubber flooring.

Available in a wide range of colors, in standard tile sizes of $8\frac{1}{2}$ or 9" square, also in sheets 35" square. Composed of a $\frac{3}{32}$ " layer of vinyl compound bonded to $\frac{3}{32}$ " resilient base of synthetic impregnated cork. Natural adhesives in synthetic resins bond the two plies together.

U. S. STONEWARE COMPANY, Dept. CP, Akron, O.

When inquiring specify CP 2815 — see handy form pages 2-3

OCTOBER, 1947



Attasol — an adsorbent mineral which gives stable colloidal suspensions, even in the presence of electrolytes — is finally available to industry. It is produced from the mineral attapulgite, which is classified as hydrous aluminum magnesium silicate.

Attasol displays the following characteristics, most of which are unique when compared with generally similar materials:

- 1 It is a naturally active adsorbent — of extreme value in removing impurities, cleaning and in reclaiming used materials.
- 2 Aqueous suspensions of Attasol gel rapidly on standing but revert to fluid condition immediately upon agitation.
- 3 When relatively small amounts of Attasol are well mixed with water, a rapid increase in viscosity takes place.
- 4 Attasol does not flocculate in the presence of electrolytes.
- 5 It wets very readily.
- 6 Attasol has a low bulk density — approximately 30 lbs./cu. ft.

Attasol's unusual properties open almost limitless possibilities for industrial use. It may provide answers for some of your problems. We'll be glad to send you a generous sample and cooperate in every way.

ATTAPULGUS CLAY COMPANY

Dept. J, West Washington Square, Philadelphia 5, Penna.

When inquiring specify CP 2816 . . . see information request blank, pgs. 2-3

5 GAL. LUG
COVER PAIL.
OTHER STEEL
CONTAINERS,
1 GAL. TO 55 GAL.



INLAND STEEL CONTAINERS

... experience and resources
insure container satisfaction

Experience, skill, extensive resources,
and unexcelled manufacturing facilities,
combine to insure *quality* steel
containers, ideally suited to your particular needs.



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PLANTS AT: CHICAGO • JERSEY CITY • NEW ORLEANS

When inquiring specify CP 2817 — see handy form pages 2-3

Materials

Versatile Colloidal Attapulgate Displays Unusual Gel Properties

*Disperses readily in aqueous media; exhibits
extensive adsorptive, detergent powers*

USES — As a washing powder, it is compatible with caustic soda, soda ash, silicates and phosphates used as adjuncts in washing severely soiled fabrics, and may be used in place of all or part of the soap customarily employed. Surface activity and the stability of its gel suggest many uses as a frothing, flotation and emulsifying agent, with special values where an electrolyte makes up a major phase of an emulsion.

Other uses include: conditioner for molding sands, filler in rubber goods, plastics, adhesives; both filler and coating in paper making; inert vehicle, pigment acceptor or filler in the manufacture of ceramics, cements, putty, paints; clarifying agent for food and water; carrier and base for pharmaceutical and cosmetic products.

FEATURES — Attasol displays the following characteristics, most of which are unique when compared with generally similar materials: (a) It is a naturally active adsorbent, — of value in removing impurities, cleaning and in reclaiming used materials; (b) Aqueous suspensions of Attasol gel rapidly but revert to fluid condition immediately upon agitation; (c) When relatively small amounts are well mixed with water a rapid increase of viscosity takes place.

DESCRIPTION — Attasol is a colloidal form of the mineral attapulgate, a complex hydrated magnesium-

Dial Control Speed Range
250 to 1000 R.P.M. For
use in lab or shop stirring
of small batches of material.

"Precision" Vari-speed
stirrers combine positive
gear drive with built-in
electric governor, instead
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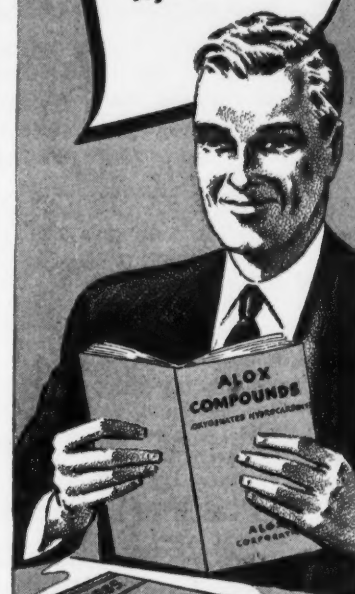
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When inquiring specify CP 2818 — see handy form pages 2-3

"PRECISION" VARI-SPEED STIRRERS



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DATA ON
ALOX
Oxygenated
Hydrocarbons



POLAR MOLECULES

● Surface active agents are daily playing an increasingly important role in industry. Alox oxygenated hydrocarbon products contain many of the compounds, such as organic acids, alcohols and esters, now recognized as having high surface activity.

The presence of the $-\text{COOH}$, $-\text{OH}$, $\text{C}=\text{O}$ — radicals in Alox compounds, and the adsorption of these groups on many different types of surfaces, is the basis of their effectiveness in preparation of materials used for the flotation of ores, protective coatings for metals, water repellent paints, etc.

These materials are also excellent sources of organic acids of relatively high molecular weight.

Write today for research data
applicable to your work.

**ALOX
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3427 BUFFALO AVENUE
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When inquiring specify CP 2819
— see handy form pages 2-3

CHEMICAL PROCESSING Preview

Materials

aluminum silicate. It is the principal mineral constituent of the Georgia-Florida fullers earth clays. It is a flowable, white, non-abrasive powder that has a bulk density in the order of 30 pounds per cubic foot. When used in distilled water, ph lies between 6.5 and 7.5. In media whose ph differs from neutrality there may be some change in ph due to Attasol's sorptive action, indicating its use for precision control of ph.

The presence of salts, acids, or bases have little effect on Attasol dispersions. For example, a gel formed by the dispersion of 4% Attasol in distilled water will have a viscosity of 20-25 centipoises at 75° F., and the substitution of saturated sodium chloride solution will change viscosity by less than one centipoise.

Furthermore, a 4% gel will have an initial shear strength of 35-40 grams (Stormer Viscosimeter) — a value which remains approximately constant upon aging of the gel.

ATTAPULGUS CLAY CO., Dept. CP, West Washington Square, Philadelphia 5, Pa.

When inquiring specify CP 2820 — see handy form pages 2-3

★

New Chemical Useful In Wetting Agents, Pharmaceuticals, etc.

Insoluble in water but soluble in ketones and esters

USES — As an intermediate, it is expected to find many applications in the manufacture of wetting agents, pharmaceuticals and other specialty chemicals not heretofore possible. As a new composition of matter, its chemical structure will suggest utility in a wide variety of fields.

FEATURES — Esters, metal salts and other derivatives are prepared readily and in good yields. The material is easily dimerized and the dimer itself is quite reactive.

DESCRIPTION — This new organic chemical, 2 — Mercapto-4, 6, 6-trimethyl thiazine (M.T.M.T.) is a yellow, crystalline material, insoluble in water but soluble in ketones and esters. Heterocyclic in nature, it reacts as a tautomeric compound with the active hydrogen atom shifting from sulfur to nitrogen as the reaction conditions are changed.

A detailed technical bulletin is available.

B. F. GOODRICH CHEMICAL CO., Dept. CP, 324 Rose Bldg., Cleveland 15, Ohio.

When inquiring specify CP 2821 — see handy form pages 2-3

★

Special Alloys for Tubes and Castings Resist Corrosion, Abrasion, High Temperatures

Special alloys resisting corrosion, high temperatures and abrasion are presented in a 16-page, illustrated bulletin. Literature concerns static castings from 1 oz. to 12,000 lbs. and centrifugally cast tubes from 2-1/2" to 24" diameter. Includes tabulated characteristics of basic chrome-nickel and chrome-iron alloys, also graphs and tables of design stress curves, tensile and high-temperature strengths.

Sound casting of small, intricate parts, such as boxes for malleablizing furnaces, is discussed and illustrated. Tube sizes, with photographs of typical castings, are included. Applications for various alloys are listed, and manufacturing facilities are discussed. Bulletin 4729-G.

THE DURALOY COMPANY, Dept. CP, Scottdale, Penna.

When inquiring specify CP 2822 — see handy form pages 2-3

OCTOBER, 1947

NEWS! ... WATER DEMINERALIZERS CUT COSTS



New

*Typical example:
costs cut
from \$50 a day
to 50¢ a day!*

Here's a NEW book describing the most modern and economical way to a readily accessible supply of mineral-free water. Here are some of the questions the book will answer for you:

- 1 Why is demineralized water so much more economical than distilled water?
- 2 What other advantages do Cyanamid's FILT-R-STIL* Demineralizing Units offer as compared to distillation?
- 3 What's in raw water besides H₂O?

- 4 Why is water processed by a FILT-R-STIL Demineralizer always of uniformly high quality—even though the raw water fluctuates considerably?
- 5 Why are FILT-R-STIL Demineralizers so easy to operate? What capacities are available? How little space is required?
- 6 How can operating costs be calculated . . . and savings?
- 7 What does Cyanamid do to "stay ahead of the parade" in demineralization?

* Reg. U. S. Pat. Off.

If your operations call for an economical supply of mineral-free water, you need this new, free book. Mail coupon for it today!

**AMERICAN CYANAMID
COMPANY**

American Cyanamid Company
Ion Exchange Products Dept. 10
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CP-5

Send me your new booklet on FILT-R-STIL Demineralizers.
Briefly, my water problem is of the following nature:

Name _____
Company _____
Address _____
City _____ State _____

When inquiring specify CP 2823 . . . see information request blank, pgs. 2-3

A U-TYPE Absolute PRESSURE GAUGE BY MERIAM

Measuring directly in inches or millimeters of mercury

This new instrument is proving notably popular in various industries for the measurement of absolute pressures from one millimeter of mercury to the equivalent atmospheric pressure.

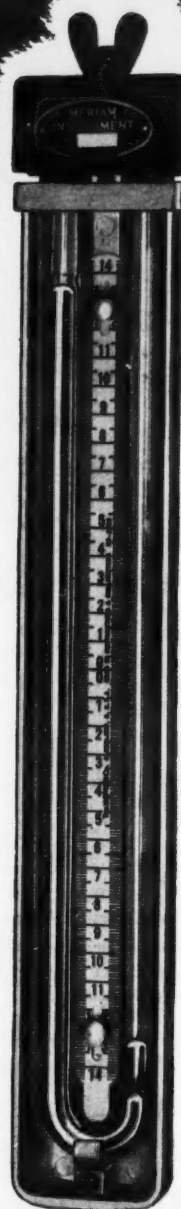
It is a U-tube manometer with one leg sealed and filled with mercury; the other open tube leg connects to the source of pressure to be measured. The tube is removable and can be easily replaced, when necessary, with another tube, mercury filled, shipped directly to location.

Of simple design—no cams, gears, levers—the Meriam U-Type Absolute Pressure Gauge is accurate and dependable. It is strongly built for lasting service. The gauge head fastens to the body by a single wing nut. Available in wall or flush front mounting styles. The wall mounted unit, illustrated, is Model C-1142 WM and is fully described in catalog sheet C-1142 WM—available upon request.

**THE MERIAM
INSTRUMENT CO.**
10940 MADISON AVENUE
CLEVELAND 2, OHIO
Western Division:
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In Canada: Peacock Bros. Ltd., Montreal

MERIAM ★
★ Instruments
ESTABLISHED 1911

MANOMETERS, METERS AND GAUGES FOR THE ACCURATE MEASUREMENT
OF PRESSURES, VACUUMS AND FLOWS OF LIQUIDS AND GASES



Pressure Gauge Resists Corrosive Action

*Available in a wide variety of pressure ranges to
suit specific requirements*

USES — Gauge may be used for pressure measurement applications and will resist the corrosive action of the following materials: acetic acid (non-aerated), alcohol (ethyl, methyl, propyl), sodium acid sulphate, sodium chloride, oxalic acid (cold), carbon tetrachloride, paper mill sulphite solution, milk of lime, boric acid, sugar solutions, tannic acid, citric acid, sulphuric acid (cold), alum solutions, and hydrogen sulphide.

FEATURES — Type 105 has a lathes-turned beryllium copper bourdon tube, with beryllium copper locktite cones screwed at the tip and socket. Tip and socket are made of brass bar stock.

DESCRIPTION — Gauge has a special bronzed bushed movement with bronze pinion and arbor and can be furnished in several case styles and dial sizes. Standard equipped with "Recalibrator" to correct the gauge in case it is knocked out of adjustment through improper handling.

JAS. P. MARSH CORPORATION, Dept. CP, 2073 Southport Ave., Chicago 14, Ill.

When inquiring specify CP 2825 — see handy form pages 2-3



Type 105 mastergauge

Differential Pressure Indicator Withstands Extreme Over-range

*Available in differential ranges from 0-50 inches of
water up to 0-200 psi. Static pressures up to 3000 psi*

USES — Flow, differential pressure and liquid level may be measured by this differential pressure indicator.

FEATURES — Pressure responsive element of the indicator employs a rupture-proof bellows unit. Although rugged in design and resistant to over-ranging, the measuring element is responsive to the slightest change in differential pressure. Dial and pointer arrangement provide for easy reading. Visibility is not affected by the condition of the liquid being measured.

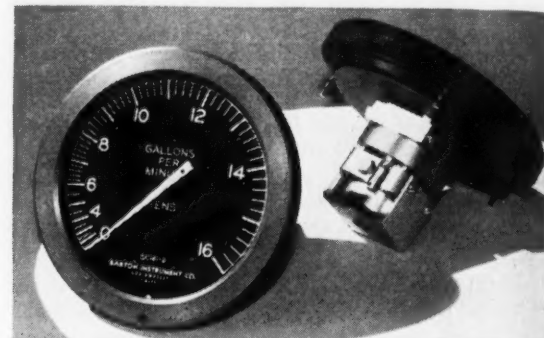
Can be mounted in any position. Breakage of glass does not expose line pressures to atmosphere.

DESCRIPTION — Instrument consists of two principal parts, a differential pressure unit and a case containing the scale and pointer movement. Differential element is composed essentially of a rupture-proof bellows, pressure housings and a pressure tight bearing.

Bellows unit is clamped between two pressure housings that surround opposite sides of the unit. This construction provides high and low pressure chambers that are separated in effect by a frictionless piston.

Process Instrumentation

Pressures (the difference between which it is desired to measure) are connected to the bottom of the high and low pressure housings. These pressures act upon the floating end of the bellows and cause them to move until the spring effect of the unit balances out the difference in applied pressure. Motion of the bellows unit



Differential pressure indicator has 6" dial

is transmitted out through the low pressure housing to the pointer movement by a follower arm attached to a small rocker shaft that turns in a pressure tight bearing. Since movement of the bellows unit is proportional to the differential pressure acting upon it, the pointer will move in direct relation to differential pressures applied to the instrument.

Model 181 has a six inch dial; wide differential range (0-50 inches of water up to 0-200 psi). Universal mounting permits either panel, wall or pipe mounting.

the LOW COST WAY to take any surface temperature

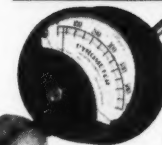
Priced at only
\$62.00
F.O.B. Chicago
for a range from
0 to 1000° F.



THE HANDY 3580

Pyrometer

- Combines low cost with laboratory accuracy!
- Hand-held, well-balanced, heavy duty indicator with thermocouple at end of rigid arm easily contacts hard-to-reach spots!
- Measures temperature of any type surface—flat or curved, metallic or non-metallic.
- Available now, in many standard ranges at surprisingly low cost!



ALNOR
3580
PYROMETER

Direct order or request for bulletin to:
Illinois Testing Laboratories, Inc., Rm. 504, 420 N. La Salle St., Chicago 10, Ill.

Alnor

PRECISION INSTRUMENTS
FOR EVERY INDUSTRY

When inquiring specify CP 2826 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

When inquiring specify CP 2824 — see handy form pages 2-3

Static pressure ratings extend up to 3000 psi.

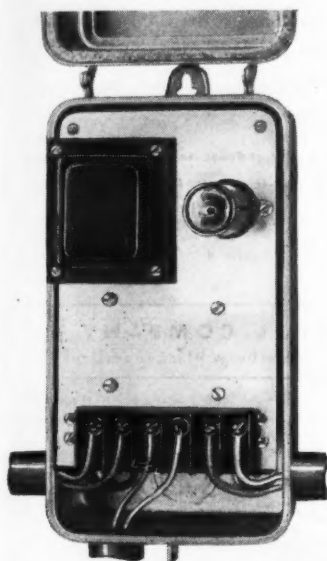
Scales may be furnished with either a square root scale for direct reading of rate flow or with a uniformly divided scale for level or differential pressure measurement.

BARTON INSTRUMENT CO., Dept. CP, 3500 Union Pacific Ave., Los Angeles 23, Calif.

When inquiring specify CP 2827 — see handy form pages 2-3

Liquid Level Control Unaffected by Foam on Surface

Operates on new electronic circuit principle by the use of a specially designed antenna or electrode



Foamless liquid level control

USES — Useful in regulating fullness in vats and tanks, or to measure and control exact intermediate levels in mixing and blending processes.

FEATURES — Not affected by liquid foam of any kind. Shows exact volume of liquid in containers at all times.

DESCRIPTION — A specially designed antenna or electrode, operating on a new principle, actuates the control relay. The control operates only when the electrode contacts the liquid surface. No floats or moving

parts are employed. Sanitary construction throughout.

LUMENITE ELECTRONIC COMPANY, Dept. CP, 407 S. Dearborn St., Chicago 5, Ill.

When inquiring specify CP 2828 — see handy form pages 2-3

Concentric Coil Winding Chart Tells Coil Widths for 24 or 36-Slot Stators

A 14½ x 22" wall chart presents helpful data on concentric coil winding for use in making single phase motor coils. Saves time spent in measuring stator slots in order to find coil widths. For 24 or 36-slot stators.

To use this chart it is necessary to know merely the air-gap diameter of the stator. Then, by referring to the tables, correct sizes for various coils in the group are found, both for starting and running winding. Assures accurate spacing without waste of magnet wire. Price, \$2.50. Remit to manufacturer named below, or inquire on inquiry slip.

CONTINENTAL ELECTRIC COMPANY, Dept. CP, 650 N. Prairie Ave., Hawthorne, Calif.

When inquiring specify CP 2829 — see handy form pages 2-3

OCTOBER, 1947

The accuracy and versatility of many pH instruments

are limited by the electrode system — **BUT NOT BECKMAN EQUIPMENT!**

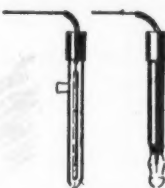
...THE INDUSTRY'S MOST COMPLETE LINE OF MODERN pH ELECTRODES IS AVAILABLE FOR USE WITH BECKMAN pH INSTRUMENTS

REMEMBER THIS important fact about modern pH equipment — glass electrode pH instruments are the most advanced and efficient type of pH equipment obtainable. But no glass electrode instrument is better than the versatility, accuracy and dependability of the electrode assemblies available for use with it.

And that is another of the many vital advantages that are yours when you select BECKMAN pH Instruments—for Beckman, pioneer of modern glass electrode pH equipment, not only provides the finest and most advanced pH instruments, but also the industry's most complete line of electrodes for use with these instruments.

Illustrated below are only a few of the more than 90 different types of interchangeable Beckman pH Electrodes that assure maximum accuracy, convenience and wide-range adaptability to users of Beckman pH Meters—the pH instruments that are the recognized standard of the industry.

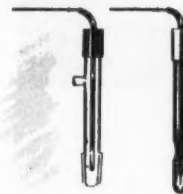
No matter what your pH problem, there is a Beckman pH Instrument and a Beckman Glass Electrode assembly to meet your exact requirements for both industrial and research applications. So why restrict your operations with anything less than the complete pH facilities provided by Beckman?



HIGH pH GLASS ELECTRODES. Pioneered by Beckman, these glass electrodes permit accurate measurement of high pH solutions with negligible error even in the presence of sodium ions. Ideal for use on detergents, soaps and many other applications where regular glass electrodes are useless.



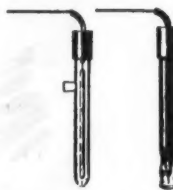
HIGH TEMPERATURE GLASS ELECTRODES. Another development pioneered by Beckman, these electrodes can be used directly in high temperature process solutions to 100° C. (212° F.) without damage. Eliminates special sampling devices and greatly simplifies control of hot processing solutions.



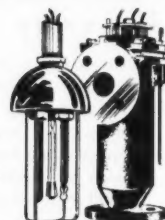
RUGGED DUTY GLASS ELECTRODES. Still another Beckman development, these electrodes are specially designed for direct immersion in tanks and flow lines where abrasion is severe (paper pulps, ore slurries, etc.). Not only abrasion resistant, but also withstand more than 100 lbs. pressure on immersion end.



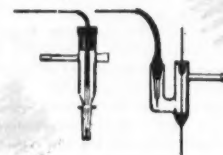
PENETRATION TYPE GLASS ELECTRODES. The pointed application end greatly simplifies direct pH measurements of cheeses, fish, fruits and similar semi-solids where penetration of outer surface is desired for internal pH measurements.



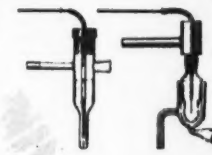
SURFACE TYPE GLASS ELECTRODES. On these Beckman electrodes the application end is nearly flat in order to simplify pH measurements on skin, hides and moist surfaces of materials where pH measurements of outer surfaces are desired.



IMMERSION AND FLOW TYPE ASSEMBLIES. Can be placed directly in flow lines, vats, tanks, etc., to permit direct and continuous pH measurements on process solutions. Far simpler, quicker and more accurate than sampling devices. Can be used with various types of Beckman electrodes.



MICRO GLASS ELECTRODES. One of dozens of specialized Beckman pH electrodes for science and laboratory investigations. This type permits quick, convenient and accurate pH measurements on samples of less than one drop.



HYPODERMIC GLASS ELECTRODES. One of many specialized Beckman pH electrodes for medical use. In this type, 0.5 ml blood samples can be injected from hypodermic needle through membrane with minimum exposure to air. Other types are also available.

THE ABOVE ARE ONLY TYPICAL of the wide selection of glass electrodes available for use with Beckman pH Instruments... one more reason why Beckman pH Instruments are recognized throughout the world for their dependability, accuracy and versatility. Beckman Instruments, National Technical Laboratories, South Pasadena 11, Calif.

BECKMAN

INSTRUMENTS CONTROL MODERN INDUSTRIES

When inquiring specify CP 2830 . . . see information request blank, pgs. 2-3

MERCROID CONTROLS

FOR OIL BURNERS, STOKERS, GAS BURNERS, REFRIGERATION, AIR CONDITIONING AND VARIOUS INDUSTRIAL APPLICATIONS



USE MERCROID "DA" CONTROLS FOR THOSE TEMPERATURE AND PRESSURE PROBLEMS

Both controls are available in a number of ranges

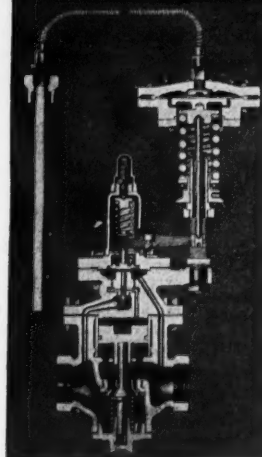


Mercoid Controls have an advantage, because they are equipped exclusively with Mercoid DUST-PROOF switches—hence the assurance of better control performance, longer control life and greater economy in control value.

THE MERCROID CORPORATION • 4213 BELMONT AVE. • CHICAGO, ILL.

When inquiring specify CP 2831 — see handy form pages 2-3

Here's Accurate Temperature Control



This **LESLIE** Temperature Regulator, Class LTCO, is actually a Pressure Reducing Valve actuated by a thermostatic element.

Install the bulb in the fluid being heated and small temperature changes will actuate the vapor pressure type element automatically, changing the setting of the regulating valve, and the outlet steam pressure.

The maximum outlet steam pressure delivered by the regulator is adjustable from 10 psi. to within 15 psi. of inlet pressure.

A typical installation on a fuel oil heater controls oil temperature within one or two degrees under maximum fluctuations of demand. Write for Bulletin 464 for the complete story.

Lowest Overall Cost per Operating Year



LESLIE CO.

281 Grant Ave., Lyndhurst, N. J.

PRESSURE REDUCING VALVES • PRESSURE CONTROLLERS
PUMP GOVERNORS • TEMPERATURE REGULATORS
SELF CLEANING STRAINERS • LESLIE-TYFON WHISTLES

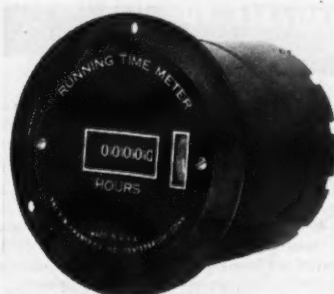
When inquiring specify CP 2832 — see handy form pages 2-3

Page 34

Process Instrumentation

Meter Registers Operating or Idle Time of any Electrical Circuit

Operates on 110 or 220 Volts, 50 or 60 cycle AC



Time totalizing meter

USES — Totalizer may be used to indicate total operation hours of automatic pumps and machines, forecasting need of servicing and parts replacement. To indicate operating time of vacuum tubes so that replacement can be made before failure occurs, or to check operating hours of equipment to be tested in laboratories.

FEATURES — Counter can be reset to zero. Precision-built five digit revolution type counter made of especially developed metals has demonstrated resistance to wear.

DESCRIPTION — Running meters with reset feature are available in three models. Type E5, furnished in die casting, suitable for table use. Type E6, enclosed in metal housing arranged for conduit connection, complete with hinged cover and hasp for padlocking. Type E7, illustrated, is a 3-3/4" diameter instrument enclosed in combination die cast and bakelite housing for

USES — Totalizer may be used to indicate total operation hours of automatic pumps and machines, forecasting need of servicing and parts replacement. To indicate operating time of vacuum tubes so that replacement can be made before failure occurs, or to check operating hours of equipment to be tested in laboratories.

Surface PYROMETERS for every purpose

The routine use of **CAMBRIDGE** Surface Pyrometers takes the guesswork out of temperature determination in many industries. The **CAMBRIDGE** is accurate, dependable, rugged, quick-acting and easy to use. The Roll Model is for checking surface temperatures of still or moving rolls. The Needle Model is for insertion into materials in a plastic or semi-plastic state for within-the-mass temperature determination. The Mold Model is for checking surface temperatures of mold cavities and surfaces of almost any contour.

Send for Bulletin 1945A.

CAMBRIDGE INSTRUMENT CO., INC.
3706 Grand Central Terminal
New York 17, N. Y.

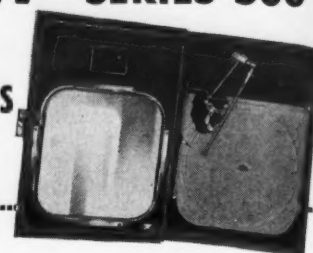
CAMBRIDGE
PIONEER MANUFACTURERS OF
PRECISION INSTRUMENTS

Moisture Indicators and Recorders • Physical Testing Instruments
Surface Pyrometers • Laboratory Instruments for A. C. & D. C. • Galvanometers
Engineering Instruments • Gas Analysis Equipment • Physiological Instruments
and many other Mechanical and Electrical Instruments

When inquiring specify CP 2833 — see handy form pages 2-3

Now... Bristol Announces

THE NEW "SERIES 500" RECORDING THERMOMETERS AND GAUGES



COMPLETELY NEW DESIGN

The "Series 500" Instruments operate on the same basic principles that have made Bristol Instruments so successful in over 50 years of service to industry... and now the working elements have been completely redesigned for:

• Unsurpassed Accuracy • Ruggedness and Simplicity • Ease of Use • Convenience in Servicing • Ready Convertibility from One Type to Another

Send for Bulletin T835

THE BRISTOL COMPANY

141 Bristol Road, Waterbury 91, Connecticut

When inquiring specify CP 2834 — see handy form pages 2-3

Pneumatic TIMERS



For accurate control of sequence and duration of process operations utilizing air cylinders, diaphragms, etc., ATC offers complete time controls built out of the simplest or most complex programs. Adjustable cams actuate poppet valves on precise schedule.

REQUEST FULL INFORMATION



THREE, STANDARD LINE AND SPECIAL

AUTOMATIC TEMPERATURE CONTROL CO., INC.
LOGAN ST. & GERMANTOWN AVE. • PHILADELPHIA 11 PA.

When inquiring specify CP 2835 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

flush panel mounting, equipped with knob reset accessible from front.

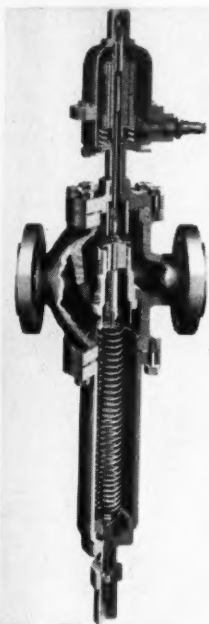
Indicates in tenths up to 10,000 hours, then repeats. Motor used in these meters, of the slow speed, self-starting type, will start and operate satisfactorily on rated voltage plus 10%. Motors are provided with an adequate supply of sealed-in lubricant and require no special attention.

R. W. CRAMER COMPANY, INC., Dept. CP, Centerbrook, Conn.

When inquiring specify CP 2836 — see handy form pages 2-3

Area Meter Measures Flow of Black Liquor, Tar, Oil, etc.

Available for flow ranges from 144 gals. per hour to 3840 gals. per hour, and for pressures up to 600 psi.



Cross-sectional view of area meter transmitter

The plug assumes a position proportional to the rate of flow. This results in a substantially constant pressure drop, which is usually 2 psi if a weight is used for calibration or 10 psi if a spring is used.

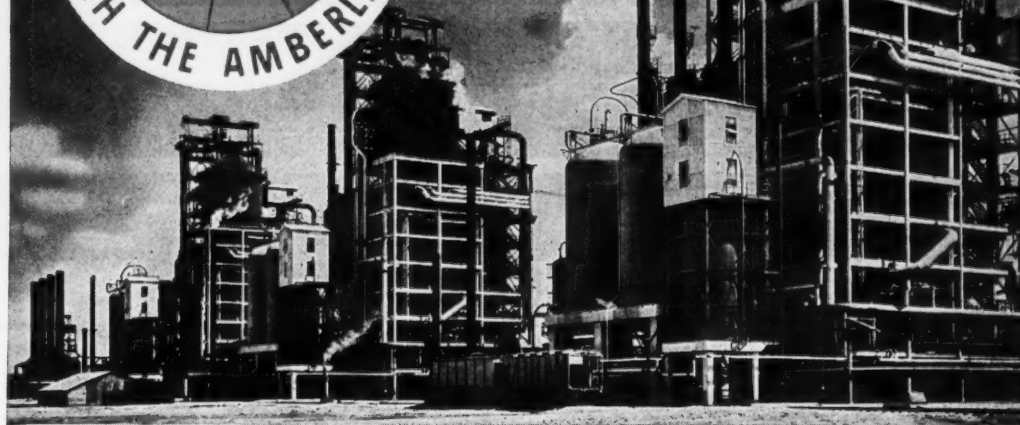
Plug is directly connected to the soft iron core of the telemeter transmitter and any movement of the plug causes a voltage ratio variation in the telemeter circuit. This variation is transmitted to the receiver, which may be an indicator, recorder and/or a controller. The electronic receiver employs an impedance bridge measuring circuit which is extremely sensitive to any unbalance in voltage ratio and therefore reacts to the slightest movement of the plug.

System is designed for 115 volt 50 or 60 cycle AC and requires approximately 60 volt amperes for both the transmitter and receiver. Does not operate on 25 cycles.

BAILEY METER CO., Dept. CP, 1050 Ivanhoe Road, Cleveland 10, Ohio.

When inquiring specify CP 2837 — see handy form pages 2-3

OCTOBER, 1947



Amberlite-treated cooling water prevents scale formation in heat exchangers

In the giant refining industry, scale-forming ions are being removed from the cooling water for heat exchangers . . . to prevent the formation of efficiency-reducing deposits. The AMBERLITE Ion Exchange Resins do the job!

In many a major industry, the AMBERLITES are being successfully used to soften cooling and boiler feed waters; to reduce alkalinity and total dissolved solids; to regulate make-up quality; or to produce *completely* de-ionized water comparable in purity to single distilled. All with a minimum of equipment, space and maintenance!

In chemical processes, too, costly steps can often be eliminated . . . product quality improved . . . with the aid of the AMBERLITES. Our technical staff will be glad to discuss potential applications.

Time-Tested
Uses and
New Ideas
Worth
Investigating



For your copy of "THE AMBERLITES," containing many application suggestions, address The Resinous Products & Chemical Company, Department CP-8, Washington Square, Philadelphia 5, Pa.

AMBERLITE is a trade-mark, Reg. U.S. Pat. Off.

THE RESINOUS PRODUCTS & CHEMICAL COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

When inquiring specify CP 2838 . . . see information request blank, pgs. 2-3

ZINC OXIDE

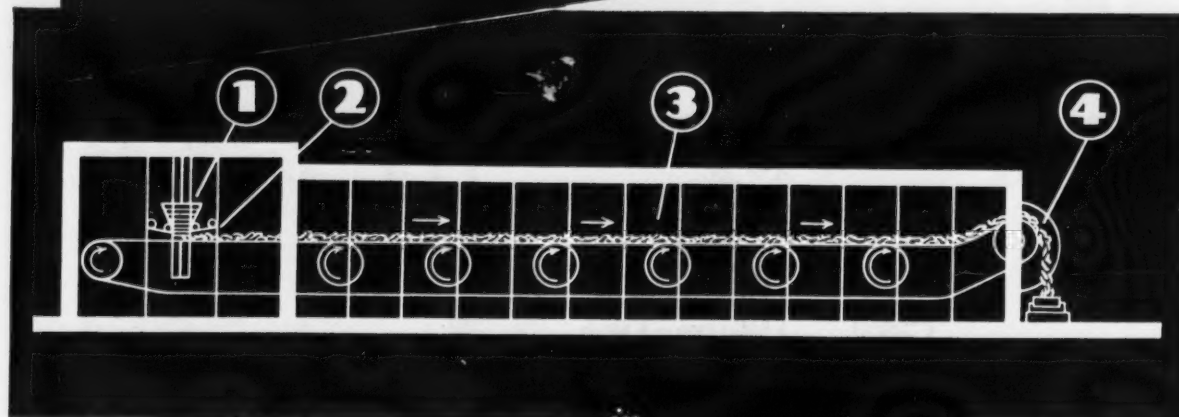
REDUCED TO 0.25% (B.D.W.B.*)

MOISTURE CONTENT

AT RATE OF

1,830 POUNDS PER HOUR

*NONE DRY WEIGHT BASIS



Tonnage production of thoroughly, uniformly dried zinc oxide was converted from a production dream into a reality with the installation of a Proctor continuous conveyor drying system, combined with a preforming feed.

Here is how the Proctor system operates in the handling of zinc oxide. ① Having been mechanically dewatered by means of a continuous filter, the still highly moist zinc oxide is deposited into the hopper of a Proctor rolling extruder feed.

② In this rolling extruder feed, the material is forced through a perforated plate by rolls moving back and forth and deposited in spaghetti-like extrusions onto the conveyor of the dryer. This particular type of preforming feed is used because the physical characteristics of the zinc oxide are such as to permit it holding a definite shape after extrusion.

③ Entering the dryer, with a moisture content of 69.5% (B.D.W.B.), these extrusions of zinc oxide lie in a bed on the perforated plate continuous conveyor of the dryer. The shape of the uniformly thick extrusions makes it possible for heated air at a temperature of 275°F. to circulate through the bed of material—thus promoting rapid diffusion and subsequent speedy, thorough and

in

PROCTOR

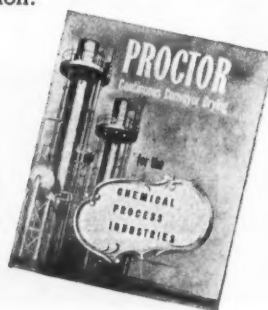
Continuous Conveyor System

uniform drying. ④ After 105 minutes of drying time, the extrusions of zinc oxide are discharged with a moisture content of 0.25% (B.D.W.B.)—uniformly dried at the rate of 1,830 pounds per hour (C.D.W.).

This installation represents one more instance where Proctor engineers converted facts gathered in the laboratory and translated those facts into a drying system that is meeting a specific need in the chemical process industries. Each Proctor system is individually designed to meet individual product and plant requirements. If drying is a part of your plant operation, you may be pleasantly surprised at what an individually designed Proctor drying system can do for your production. Consult Proctor engineers without obligation.

PROCTOR & SCHWARTZ, INC.
PHILADELPHIA 20, PA.

A new 12-page booklet on "Proctor Continuous Drying for the Chemical Process Industries" is available upon request. It contains many case studies showing the application for Proctor individually designed systems. Write for your copy of this informative booklet today



When inquiring specify CP 2839 . . . see information request blank, pgs. 2-3

Process Instrumentation

Tester Measures Specific Gravity Continuously

Standard construction includes carbon steel, bronze, stainless steel or Hastelloy

USES — Instrument is used for the continuous indication of fluid specific gravity in closed piping systems. Especially useful in distillation work.

FEATURES — Eliminates hazardous and tedious draining of sample batches. Sturdily constructed to withstand heavy line strain. Has high visibility.

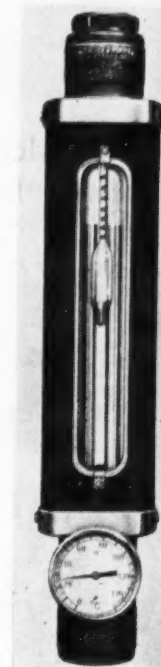
DESCRIPTION — In operation the liquid of which the specific gravity is to be measured enters through the connection nearest the bottom, flows through the control valve, past a thermometer and upward into a borosilicate glass tube containing the hydrometer. It then spills into two metal overflow tubes, whence it discharges through the connection just above the inlet.

A special glass lug is blown on to the barrel of the hydrometer. The hydrometer is so placed in the gravity tester that the lug projects between the two overflow tubes. Thus rotation of the hydrometer is prevented and the scale is kept visible at all times.

Needle control valves, thermometers and hydrometers are built into the compact unit.

FISCHER & PORTER COMPANY, Dept. CP, Dept. 8E-B, Hatboro, Pa.

When inquiring specify CP 2840 — see handy form pages 2-3



Continuous specific gravity tester

Liquid Level Gauge Combines Mechanical Measurement with Electrical Transmission

Five level ranges available for 25, 35, 45, 48 and 57 feet

USES — Gauge is useful in the processing industry wherever it is necessary to gauge the height of liquids in storage tanks.

FEATURES — Easy to install, often while tank is in service. No float guides are required.

DESCRIPTION — Mechanical equipment employed for the measurement of liquid levels consists of an unguided "slip stream" displacement member in contact with the liquid and a mechanism to indicate the liquid level. A fine stainless steel wire leads from the displacement member, through protective piping, to

CHEMICAL PROCESSING Preview

the indicating mechanism. The gauge case and the interconnecting piping provide a pressure-tight installation.

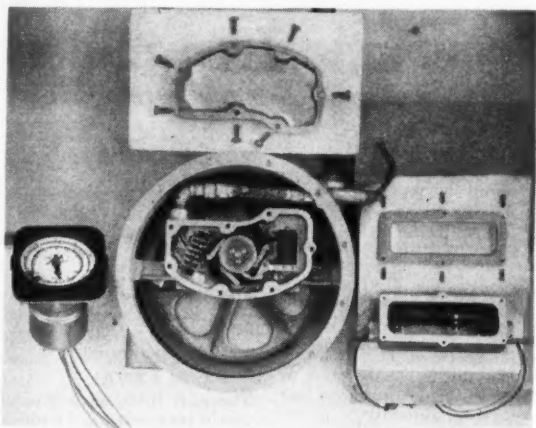
Counterweighted displacement member, in the shape of a small boat with prow and keel, is suspended from the wire and rides on the liquid surface. It faces the current and remains in position with support wire perpendicular. Wire is conducted over ball bearing sheaves and through a pipe enclosure to wind on the grooved drum of the mechanism in the gauge housing at eye-level height above the ground. Float may be dropped down through a 2" opening.

May be used on all types of tanks — cone or flat roof, balloon and breather roofs, horizontal cylindrical tanks, spheres and spheroids. Capacities — 25 feet, 35 feet, 45 feet, 48 feet and 57 feet. Standard Model "A" for low pressures not exceeding two pounds per square inch. Model "P" for higher working pressures.

For remote indication applications, electrical transmitter and indicator are employed. Illustration shows complete electrical equipment used.

Transmitter has a pinion on the drive shaft which engages a drive gear on the liquid level gauge drum and dial shaft. Three single pole double throw micro switches are equally spaced about the operating cam. The three switches open and close in rotation, energizing the corresponding receiver coils.

Transmitter is made either with or without the "off-current" locking device (called a brake), a unit that locks the entire gauging mechanism in a fixed position in the event of a power failure, and returns the gauge reading to the new liquid level when power is restored.



Transmitter and indicator used to provide remote indication of liquid levels

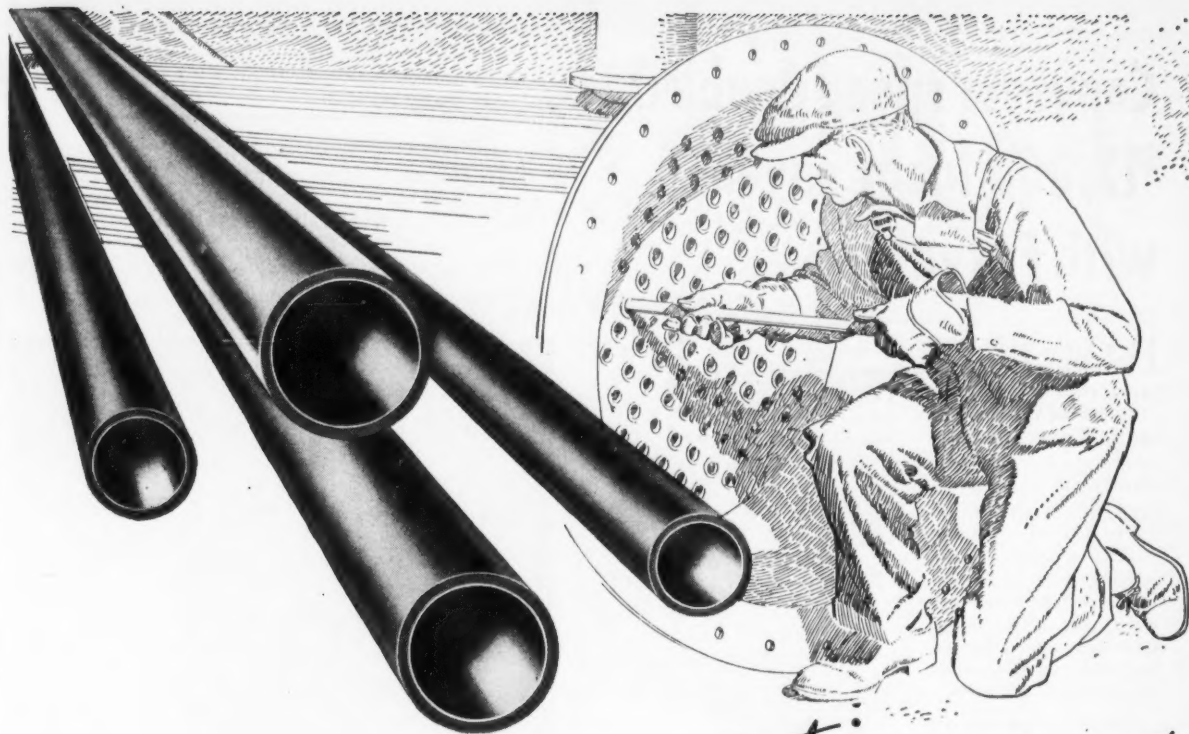
Remote indicator is essentially a 3 coil 2 pole impulse motor. As each transmitter switch successively is opened or closed, due to change of liquid level in either direction in the tank, the corresponding motor coil is energized causing the rotor to move radially to a new position in increments of one-eighth inch.

As the rotor turns the shaft to which it is affixed, it operates the dial indexing mechanism to give corresponding indicator reading. The small hand records inches and one-eighth inches and the large red target, visible from a distance, records the feet of depth.

SMITH METER CO., Dept. CP, 5743 Smithway St., Los Angeles 22, Calif.

When inquiring specify CP 2841 — see handy form pages 2-3

OCTOBER, 1947



HERE'S WHAT YOU WANT FROM CONDENSER TUBES

*and get
of Alcoa Alclad Aluminum*

You can use Alcoa Aluminum Condenser Tubes safely with almost all types of aggressive cooling waters. The integral lining inside these Alclad Tubes reduces the danger of perforation. Beyond that, aluminum is highly resistant to a wide variety of chemicals and petroleum products.

Because of the high conductivity of aluminum . . . 1509 B.t.u./hour/sq. ft./inch/degree F . . . condensers and heat exchangers of Alcoa Aluminum work at high efficiency. And because these aluminum tubes are light in weight and easy to roll in, fabrication and erection costs are less.

Right at the start you'll probably find that Alcoa Alclad Aluminum Condenser Tubes cost less per foot than the tubes you are now using. We'll be glad to give you prices and design data. ALUMINUM COMPANY OF AMERICA, 1731 Gulf Building, Pittsburgh 19, Pennsylvania. Sales offices in 55 leading cities.

LOW ORIGINAL COST

HIGH RESISTANCE
TO CORROSION

RAPID HEAT TRANSFER

LOW MAINTENANCE
COST

LIGHT WEIGHT

MORE PEOPLE WANT MORE ALUMINUM FOR MORE USES THAN EVER

ALCOA ALUMINUM

IN EVERY COMMERCIAL FORM



When inquiring specify CP 2842 . . . see information request blank, pgs. 2-3

Conveyor speed doubled, \$12,000 labor saved with Farval

IN a plant with 110,000 feet of coal conveyor, the company employed 4 men per shift to hand-lubricate the 650 bearings on 17 conveyor drive units. Bearings frequently heated up or failed between oilers' visits. Other bearings were neglected while those in trouble were being nursed along. Conveyor speed had to be reduced and coal delivery slowed down.

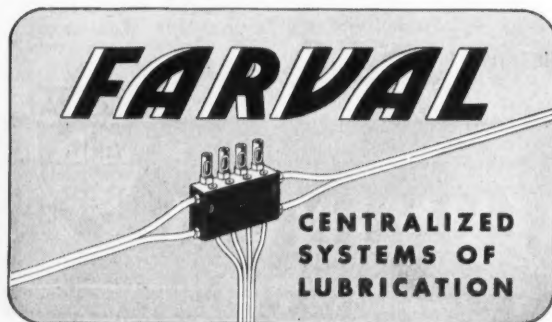
Then Farval was installed. Twenty-six manually operated centralized lubricating systems were adequate to serve the 650 bearings. Since then there has not been a single bearing failure due to lack of lubrication. Conveyor speed has been stepped up from 300 feet to 600 feet per minute, and coal delivery approximately doubled. And it requires only 2 men per shift to operate the 26 Farval systems—an annual saving in oiling labor alone of more than \$12,000.

Thousands of Farval Centralized Systems of Lubrication have been installed in industry. In coal preparation plants, for example, Farval serves Conveyors, Feeders, Crushers, Shakers, Vibrating Screens, Elevators, Washers, Jigs, Dryers, Mixers, Loading Booms and Drives.

Farval is the Dualine System of Centralized Lubrication, with the Positive Piston Displacement Valve. This valve has but two moving parts and is fully adjustable, with a Tell-tale indicator at each bearing to show the job is done.

Write for Bulletin 25 for a full description of Farval. The Farval Corporation, 3257 East 80th Street, Cleveland 4, Ohio.

Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing. In Canada: Peacock Brothers Limited.



When inquiring specify CP 2843 — see handy form pages 2-3

Page 38

Microhardness Tester Measures Within Extremely Minute Areas

Achieves accuracy comparable with tests on larger areas with conventional hardness testers



Tester with penetrating unit (left) and mechanical stage (right) with microscope

A microhardness tester, perfected by scientists of the Research Laboratory, United States Steel Corp. of Delaware, Kearny, N. J., is in continuous use perfecting studies of the microscopic constituents of steel. Like the Brinell, Rockwell, Vickers and other hardness testers, but on a much finer scale, the Kearny device operates by indenting the polished surface of a steel sample.

Its diamond point penetrator, under a load of a very few grams, leaves a square mark which can rarely be seen by the naked eye. The diagonals of this tiny square indentation are measured in microns, and this reading related to the load on the penetrator so that hardness may be computed.

The device makes possible the measurements of hardness gradients within areas too small to permit satisfactory exploration with any of the usual hardness testers. The tester measures with amazing accuracy the hardness of the hardest steel constituents. This is necessary to know the hardness of steel grains themselves, and of the iron and other alloy carbides.

The mechanism (see illustration) consists of the indenter with a square base, 136 degree diamond pyramid penetrator, the mechanical stage for holding the specimen, a microscope capable of magnifying the test field 500 to 1500 times, and a control box.

Depending on the hardness of the sample, indentations may range upwards of 2 microns in depth, which is proportional to the diagonal of the square indentation. All parts are assembled on a heavy cast iron plate supported by steel legs which rest on insulated wood blocks

Ideas

to minimize the effects of vibrations in the building. As many as 60 indentations may be made automatically at predetermined time intervals for surveying tiny gradients, which may have an important influence on the behavior of a fabricated product such as a weld.

★

Spectrometer Offers Advantages In Gaseous Hydrocarbon Analysis

Large number of complex gas samples can be analyzed in one day

By DR. EARL J. SERFASS
Lehigh University

As told to JOS. L. WHITE, Managing Editor

One of the advances in the field of analytical chemistry has been the mass spectrometer. Prior to the use of this instrument analysis of gaseous hydrocarbons used in aviation gasoline and synthetic rubber was carried out by laborious fractional distillation procedures. Separation, identification and determination of the quantities of, for example, ten components in a hydrocarbon gas stream, required several days by the old technique. With the aid of the mass spectrometer a similar analysis may be completed in an hour.

The mass spectrometer is essentially a device for sorting gas molecules. Atoms or molecules of a mixture

Pneumatic Transmitters

FOR MEASURING FLOW AND LEVEL

Operating On The Force-Balance Principle

Republic pneumatic transmitters (force-balance type) permit the centralization of process records without the necessity of running lead lines containing poisonous or explosive products into control rooms. By eliminating long lead lines, the consequent troubles due to vaporization or freezing are also eliminated. The Republic transmitter is located close to the point of measurement and the value transmitted pneumatically to some distant point where it can be either indicated, recorded or controlled.

FLOW

Republic pneumatic transmitters are particularly adaptable to the flow measurement and control of steam, water, gas, air or oil at static pressures up to 600 lb. per sq. in. They are built to operate on differentials as low as 0.9 in. of water and as high as 800 in. of water.

Pneumatic transmitters are also provided for the flow



Typical installation for measuring flow

measurement of viscous or vaporous liquids which will either congeal or vaporize in lead lines exposed to atmospheric temperature.

LEVEL

There are three types of pneumatic transmitters by which liquid level measurement and control, in either open or closed vessels, may be secured.

1. The differential pressure type, in which the level is measured between the liquid level and a known reference level.
2. The buoyancy type, in which the buoyant force exerted by the liquid against a displacer tube is measured.
3. The weigh tube type, in which the weight of the liquid in a tube is measured.

Write For BULLETIN NO. 1000

REPUBLIC FLOW METERS CO.
2245 Diversey Parkway • Chicago 47, Illinois

When inquiring specify CP 2844 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

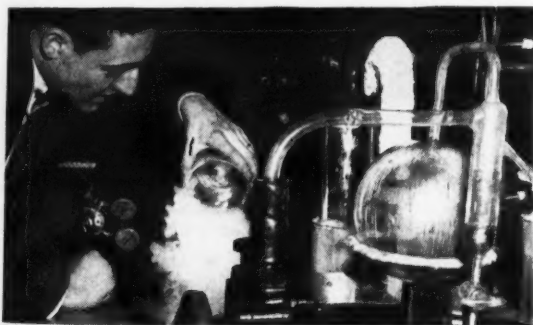
of gases in the unknown sample, at very low pressure, are bombarded by a constant intensity beam of electrons produced by a heated tungsten filament. Positively and negatively charged ions are produced from the gas molecules. The positive ions produced are accelerated by an ion gun operating at high voltage through a series of slits and into a magnetic field.

Beam of positive ions is bent in passing through this magnetic field, the amount of bending depending upon the mass and velocity of the individual ions constituting the beam. By gradually varying the electric and magnetic fields, ions of any given mass can be caused to fall successfully upon a collector. The quantity of the ions falling upon the collector is measured by amplifying and recording equipment.

One particular mass spectrometer allows us to focus and measure quantities and masses of ions from the lightest element, hydrogen, up to uranium.

Thus given a mixture of hydrocarbon gases resulting from the oxidation of a lubricating oil, we are able to sort out the various molecules present as well as to determine the quantities of each. A principal use of this apparatus has been in the study of the oxidation products formed during the use of lubricating oils and greases. Many other types of analyses, however, may be made with the aid of this instrument. For example, rapid analysis for benzene, toluene, and xylene in coal gas distillations may be made.

Another special application of the mass spectrometer as an analytical tool is in the determination of the kinetics of chemical reactions. The spectrometer may be used for the purpose of continuous sampling of a reacting gas mixture. For example, the instrument might be connected directly to a gas processing tower for use in following the progress of a reaction.



Cooling mercury traps of mass spectrometer with dry ice

A list of the advantages of the mass spectrometer as an analytical tool would include the following: (1) A large number of complex gas samples may be analyzed in one day; (2) Mixtures of gases containing up to about 12 individual components can be analyzed without preliminary separation; (3) The results are particularly independent of the skill and judgment of the analyst and (4) Only a very small sample is required for analysis — about .2 cc. at atmospheric pressure being sufficient.

Many problems which extend the use of this instrument in the analytical field are constantly being proposed. It is felt that the introduction of instruction in mass spectrometry is therefore a vital part of the curriculum of a graduate chemist or chemical engineer. For this reason it is proposed to institute graduate work in the specified field of theory and use of mass spectrometry. (Lehigh University, Bethlehem, Pa.)

OCTOBER, 1947

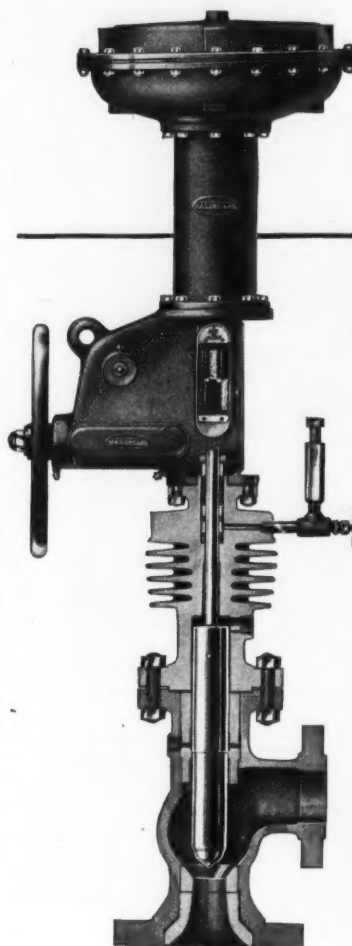
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CONTROL VALVES FOR Petro-chemical Applications

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expanded outlet

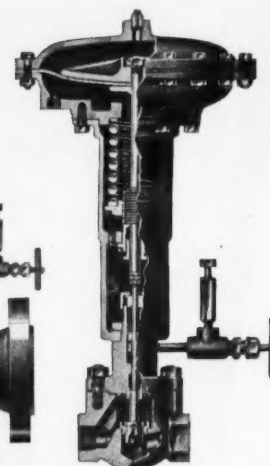
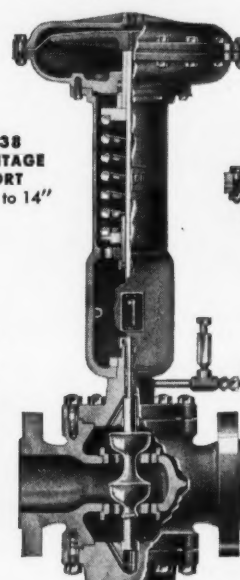
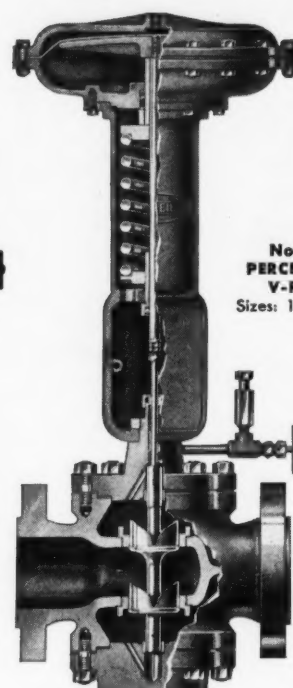


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PERCENTAGE
PISTON
Orifice sizes:
1/8" to 3/4"
Body sizes: 3/4", 1"



No matter what the application, temperature, pressure, level and flow, there is a Masoneilan control valve designed to meet the requirements of the petro-chemical industries.

Masoneilan control valves are available in a wide range of types and sizes from 1/16" orifice and up. Masoneilan Engineers are available for engineering assistance on your control valve problems.

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No. 107
Orifice sizes:
1/16" to 3/4"
Body size: 1/2"

When inquiring specify CP 2845 . . . see information request blank, pgs. 2-3

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6 PROTECTIVE COATINGS
to insure against surface failure

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★ STANDARDIZE ON AMERCOAT

No single formula for a protective coating can be versatile enough to provide maximum surface protection under all conditions without compromising on some desirable quality. For this reason, AMERCOAT offers a variety of coatings, each designed to meet important requirements in controlling corrosion and preventing product contamination. There are AMERCOAT Coatings for a full range of uses, from general purpose coatings for maintenance to specialized coatings for surfaces immersed in strong chemicals.

By standardizing on AMERCOAT, there is a choice of six AMERCOAT Industrial Plastic Coatings. Since application methods for these various formulas remain essentially the same, maintenance men become familiar with application and performance. This eliminates the necessity of gaining experience with coatings of several different manufacturers in order to have a product for every coating need.

Write for a free booklet on these AMERCOAT Coatings, or, if desired, detailed information on your specific coating problem, and address of supplier near you.

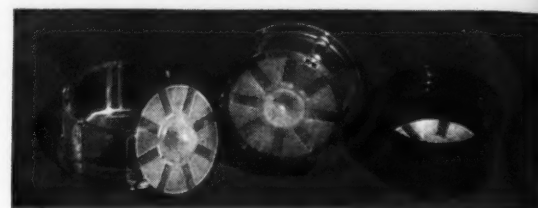
AMERCOAT DIVISION, AMERICAN PIPE AND CONSTRUCTION CO.
Dept. 6H P.O. Box 3428 • Terminal Annex • Los Angeles 54, California

When inquiring specify CP 2846 . . . see information request blank, pgs. 2-3

Ideas

Improved Closure & Liner for Acid Carboys

Design insures correct insertion of liner; cap vents at 10 psi



Liner and closure for acid carboys

A Polystyrene closure and a new-type Polyethylene liner have been developed for acid carboys. The new liner, superior to the type formerly used, consists of eight radial spokes and a hump in the center which insures that the liner will be inserted correctly in the closure.

The new cap has received tentative approval by the Manufacturing Chemists Association and meets Interstate Commerce requirements.

It has been designed to vent at pressures not exceeding ten pounds per square inch. In general it has been used successfully on sulphuric, hydrochloric, and nitric acids, hydrogen peroxide up to 35 per cent, and sodium hypochlorite. (Closure and liner are developments of Owens-Illinois Glass Co., Toledo, Ohio)

★ Mercury-Balance Method Measures Tensile Strength of Gels

Applicable to all types reversible (gelatin) or irreversible (starch)

An improved method for more precise measurements of tensile strength of gels has been developed by W. J. Hamer of the National Bureau of Standards, Washington, D. C. This procedure which gives the strength or yield value and resistance to deformation of the material under study, essentially involves the determination of the shearing force necessary to fracture the gel as given by the weight of mercury required to pull a standard disc from the gel in which it is imbedded.

In several of the applications of gelatin, glue, starch, agar, and various gums it is important to know the tensile strength of the gel or jelly.

More objective methods than those that have been used have been desired in such studies as those involving gelatin jellies used in photographic operations, particularly with the increasing use of flexible film supports instead of rigid bases.

To meet these needs the bureau has developed a precise method. The procedure was developed specifically for the study of paste walls of dry cells, but it may be applied to all types of gels and used in the study of food starches, in following small changes in starch pastes for use in adhesives, and in many other applications.

The method involves the balancing of the cohesive forces of the gel against a gradually increasing quantity of mercury until the yield point is reached and the gel is broken. A brass disc is suspended in a beaker containing the gel by means of a wire attached to one beam

SLY PIONEERS AND LEADERS IN DUST Control



Sly Dust Filter used for the collection of fine, float, silica dust in a large southern California plant. Thousands of other Sly Dust Filters are used similarly for suppression and collection of injurious dusts.

Sly pioneered in the development of positive dust collection and were the original patentees of the cloth type filter.

The most effective—as well as simplest and cheapest—method of dust collection is by cloth filtration. The Sly Filter uses more cloth than any other and hence has greater filtering capacity.

This additional capacity plus savings in operation and maintenance make the Sly Filter most inexpensive in the long run. Ask for Bulletin 98 and state your condition so that we can write you fully. Send for this bulletin.

THE W. W. SLY MFG. CO.
4748 Train Ave. • Cleveland 2, O.

SLY

When inquiring specify CP 2847 — see handy form pages 2-3

SOUTH BEND LATHES VERSATILE ACCURATE



The versatility and accuracy of South Bend Precision Lathes speed-up toolroom and production work. With them, a wide variety of exacting work can be efficiently machined to precision tolerances with less effort. Prices start at \$145.00. Average increase over pre-war price level is less than 15%.



SOUTH BEND LATHE WORKS
439 E. Madison St., South Bend 22, Ind.

BUILDING BETTER LATHES SINCE 1906

WRITE FOR CATALOG 100-F
Shows 9" to 16" lathes
and attachments. Prompt
delivery—factory time
payment terms, if desired.

When inquiring specify CP 2848 — see handy form pages 2-3

OCTOBER, 1947

Ideas

of an analytical balance. An adjustable platform over the balance pan supports the beaker. The gel is covered with liquid petroleum to prevent "skin" formation. Mercury is added from a burette at a constant rate to a container on the other pan.

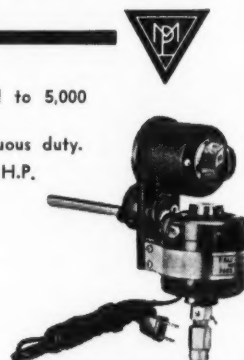
Different flow rates are made possible by use of a removable capillary tip held to the burette by a rubber tube. The capillary tip is calibrated before use by weighing the mercury it delivers at a given time. As the mercury is added, the height of the platform is changed manually so that the balance is always kept at zero. A vertical scale indicating the height of the adjustable platform is read at frequent regular intervals until the gel is broken.

The weight of the mercury required to produce a fracture in the gel, divided by the area of the brass disc, gives the gel strength in grams per square centimeter. The rate in change in height of the adjustable platform gives an indication of the resistance the gel offers to deformation. A fast rate means that the gel is easily deformed, whereas a slow rate indicates that the gel resists deformation and is probably quite rigid.

This method has a precision greater than 0.5 per cent. Its limitations lie more in the reproductibility with which gels can be prepared than in errors inherent in the method. It may be applied to all types of gels whether they are reversible (gelatin) or irreversible (starch) type. In addition to their more familiar uses gel strength measurements are used in studies of granular structure of starches and in determination of acids, heat, aging, alcohols, and other physical or chemical factors in the elasticity of starch and gelatin gels.

LABORATORY STIRRERS with COMPLETE Speed Control

- Rheostat speed control to 5,000 R.P.M.
- Standard motor, continuous duty.
- Plenty of power — .01 H.P.
- Stainless steel mounting rod.
- Can be clamped to any standard laboratory support.
- Rugged chuck, for 1/4" rod.
- Operates on 110 volts AC or DC.



MODEL 7603
\$17.25

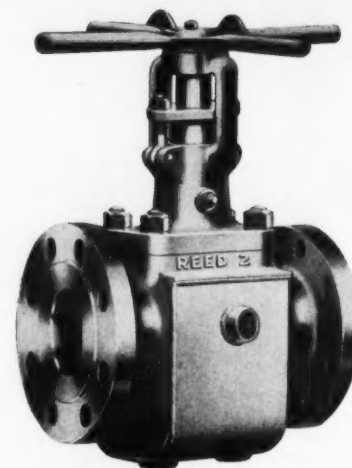
This is just ONE of our complete line of high quality laboratory stirrers — of all kinds, for all purposes. Tell us your needs. We will be glad to advise you.

Write For Descriptive Bulletin 3404-W.

PAIO-MYERS INC.
81 READE STREET • NEW YORK 7, N.Y.

When inquiring specify CP 2849 — see handy form pages 2-3

REED Jacketed Steel VALVES WITH FABRICATED JACKETS



JACKETED STEEL VALVES

Reed Jacketed Steel Valves have fabricated jackets and can be furnished in Standard Series 150 and Standard Series 300... Flanged valves can be furnished in sizes 1 1/2", 2", 3", 4" and 6", F & D to A. S. A. standard dimensions. Screwed valves in sizes 1 1/2", 2" and 3" only.

Deep stuffing boxes assure effective sealing, and wear on the packing is minimized, as the stem makes only a quarter-turn when the valve is operated.

Reed
VALVE DIVISION
of the REED ROLLER BIT COMPANY

P. O. DRAWER 2119

HOUSTON 1, TEXAS

When inquiring specify CP 2850 — see handy form pages 2-3

MAYBE YOU'RE NOT INTERESTED IN PINEAPPLE JUICE ... but



you may have the same problems of contamination, corrosion, suspended solids and mechanical remote control which prompted the engineers of The Dorr Company to select Grinnell-Saunders Diaphragm Valves for the Dorrco De-Ionization System for the new plant of the Hawaiian Pineapple Co. in Honolulu.

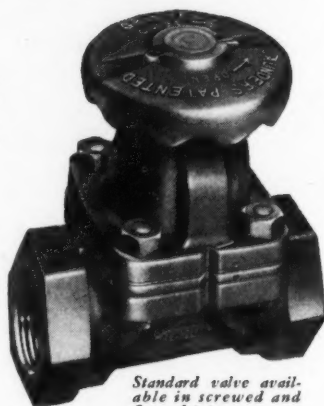
GRINNELL-SAUNDERS DIAPHRAGM VALVES

ISOLATED WORKING PARTS

The flexible diaphragm isolates working parts of the valve from the fluid, preventing contamination or corrosion.

CORROSION-PROOF LININGS

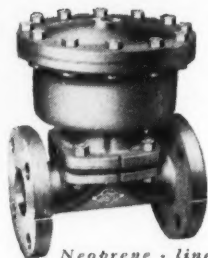
A selection of diaphragm materials and also body linings of glass, porcelain, lead, rubber or synthetics to suit service requirements.



Standard valve available in screwed and flanged types.

STREAMLINED FLOW... POSITIVE CLOSURE

Streamlined passage without pockets minimizes friction. Large area of contact of the diaphragm, plus diaphragm resilience, permit positive closure even when solids are trapped.



Neoprene-lined, piston-operated valve for mechanical remote control.

Write for catalog—
Grinnell-Saunders
Diaphragm Valves

GRINNELL COMPANY, INC.

Executive Offices:
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Branch Warehouses
in principal cities.

GRINNELL

WHENEVER PIPING IS INVOLVED

New Literature

Line of Welding and Cutting Equipment Is For Heavy, Medium or Light Duty

Welding and cutting equipment of many types is impressively displayed in a four-color, 20-page catalog. All units are fully illustrated in natural color. Blueprints, features and full descriptive information are given. Material covers large capacity industrial units, medium capacity units for manufacturers, units for very light gauge welding, lead burning, etc.

A welding torch covering the entire welding range from light gauge metal to heavy castings is shown complete with all attachments in a large, 2-page illustration. Folding flaps list applications and describe the versatility of this unit. General cutting units for all hand cutting operations are similarly treated, also hand cutting torches and head and tube assemblies, machine cutting torches and cutting tips. Form 20A.

VICTOR EQUIPMENT COMPANY, Dept. CP, 844 Folsom St., San Francisco 7, Calif.

When inquiring specify CP 2852 — see handy form pages 2-3

★

Chemical Selective Plugging Agent Useful in Secondary Recovery of Oil

An illustrated 12-page pamphlet describes the use of a new chemical selective plugging agent in secondary recovery of oil by water flooding. Booklet describes the chemical nature of the agent, which is one of a series of rosin and resin emulsions. It also includes information on its application, how it helps in secondary recovery by water flooding, and results of oil field tests.

This information is amplified by charts showing the results of using the agent in several different wells. Product is described as being economically effective in reducing excessive water consumption by sealing off more permeable, non-productive sands and directing water-flow into oil-containing sands. "Dresinol" booklet.

HERCULES POWDER COMPANY, Dept. CP, Wilmington, Del.

When inquiring specify CP 2853 — see handy form pages 2-3

★

"Flat-Cured" Industrial Fire Hose Folds Compactly Without Kinks

Industrial fire hose for mill and plant protection is the subject of a 4-page catalog section. Fully illustrated with cross-sectional views, showing construction and the manner in which "flat-cured" hose folds compactly into place, without kinking.

Both single and double jacketed types, also rubber-covered hose, is included. Specifications are given for numerous models. Types of couplings are shown, with descriptive information. Catalog Section 3750.

THE B. F. GOODRICH COMPANY, Dept. CP, Akron, O.

When inquiring specify CP 2854 — see handy form pages 2-3

★

Industrial Trailers and Dump Trucks Handle or Dump Many Types of Material

Industrial trailers, dump trucks and special-purpose trailers are fully described in an illustrated, 8-page booklet. Equipment covered includes all-purpose, caster-steer type trailers for 3000, 4000 and 5000-lb. capacities;

medium and extra-duty fifth-wheel or wagon-type trailers; power-drawn dump trucks of 2500, 3000 and 4000-lb. capacities for "any bulk material that can be dumped."

Couplers, wheels and casters are graphically illustrated with cut-away pictures and operational photographs. In all cases, specifications are tabulated. Several miscellaneous trailer types are shown on back page, also a specially designed rack for servicing platform trucks and trailers.

SERVICE CASTER & TRUCK CORPORATION, Dept. CP, Albion, Mich.

When inquiring specify CP 2855 — see handy form pages 2-3

★

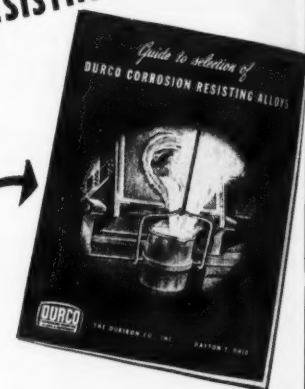
Steel Strapping Methods Save Dollars for Shippers: Booklet Quotes Figures

"Savings in Shipping" is a 32-page booklet which presents authentic, illustrated case histories showing how various methods of steel strapping are saving dollars in time, materials and labor for numerous shippers. Company names and actual cost figures are given. Graphically illustrated with on-the-scene photographs.

Pictures of the latest tools and accessories are included. Case histories cover applications of steel strap to shipments of plywood, plastic surface sheeting, metal parts and cylinder blocks, bottled goods, steel drums of asphalt products, apple boxes, other food and industrial

If you buy CORROSION-RESISTING EQUIPMENT

you should
have this
NEW
BULLETIN



Listing 155 corrosives, it shows which of five well-known DURCO alloys offers most satisfactory resistance to each. Where two or more alloys are satisfactory, the most economical alloy possessing the required mechanical properties can be selected.

If you buy pumps, valves, pipe, heat exchangers, steam jets, and other corrosive-handling equipment, you will find this guide an invaluable aid.

Write today for your free copy
of bulletin 100



THE DURIRON CO., INC.
DAYTON 1, OHIO
Branch Offices in Principal Cities

When inquiring specify CP 2856 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

products. It includes those shipping in standard containers, oversize or odd-shaped bundles and containers, carloads or LCL shipments.

ACME STEEL COMPANY, Dept. CP, 2840 Archer Ave., Chicago 8, Ill.

When inquiring specify CP 2857 — see handy form pages 2-3

★

Centrifugal Processing Pumps Handle Up to 1300 gpm at Heads to 275'

A line of centrifugal process pumps in five sizes up to 1300 gpm at heads to 275' is the subject of a 4-page bulletin. Literature relates that they are designed for severe wear in handling corrosive and abrasive liquors. Diagrams and cut-away illustrations show the simple and rugged construction, larger shaft, heavier bearings and greater metal thickness.

Descriptive matter discusses overall unit and various parts. Those subject to severe wear are separate pieces, easily replaced, while bearing pedestal supporting both parts and rotating assembly is cast in one piece. Adjustable wearing clearance assures maintenance of capacity and efficiency without dismantling. Bulletin 08B6615.

ALLIS CHALMERS MFG. COMPANY, Dept. CP, Milwaukee 1, Wis.

When inquiring specify CP 2858 — see handy form pages 2-3

★

Controls Inner Bore of Glass Tubing to Plus or Minus 0.0002

A complete list of more than 100 standard stock sizes of precision-bore pyrex tubing, also many special shapes, is included in a 4-page catalog section describing precision-bore glass specialties. Literature is fully illustrated. Square, hexagonal, oval, fluted and tapered shapes, regularly made to specifications, are also shown.

Listed applications for precision-bore tubing include high accuracy manometers, barometers, flow restriction nozzles, viscosimeters, bearings, other glass instruments and apparatus where precise internal dimensions are critical. High finish of inner bore, controlled to within plus or minus 0.0002, is described as especially suitable for manufacture of optical cells. Catalog section 95-D.

FISCHER & PORTER COMPANY, Dept. 9E-D, Dept. CP, Hatboro, Penna.

When inquiring specify CP 2859 — see handy form pages 2-3

★

Line of Powder-Filling Machines Fills and Caps Jars, Cans, Boxes, Tubes, Bags

A complete line of powder filling machinery for filling and capping jars, cans, boxes, tubes and bags is described and illustrated in a 6-page catalog-folder. Equipment includes automatic, semi-automatic and manual fillers for chemical, food, pharmaceutical and allied industries.

Performance data and complete specifications are given for all equipment. Literature relates that dust collecting heads and auxiliary overhead hoppers are available. Automatic model automatically stops filling when improperly loaded with empty containers. It fills and caps up to 60 units per min. as compared to 20 and 35 units per min. for semi-automatic and manual types. A partial list of users is included.

HAROLD W. BAKER COMPANY, Dept. CP, 1111 Lancaster Ave., Bryn Mawr, Penna.

When inquiring specify CP 2860 — see handy form pages 2-3

OCTOBER, 1947



Protect with "Varec"

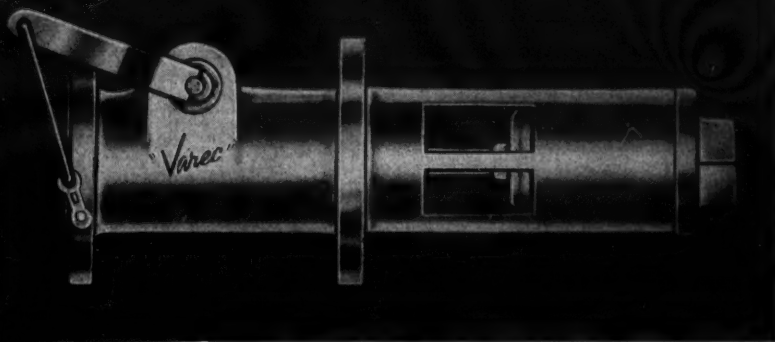
THE PACE SETTER SINCE 1928



Progressive engineering, good design, first class workmanship and materials, together with rigid inspection and testing to exacting specifications insure the quality of "Varec" approved "Products."

Right:—"Varec" approved Internal Safety Valve, Fig. No. 507, with Flanged Connections.

Below:—Cutaway view of "Varec" approved Internal Safety Valve, Fig. No. 506, with Screwed Connections.



THIS Internal Safety Valve is designed to automatically close the flow into or from the tank in case of external fire exposure. The valve is spring-loaded and is held in its normal open position by a fusible link. On contact with fire, the link instantly melts. The valve then closes, insuring a positive shut-off.

To install a Swing Joint Assembly in conjunction with the Internal Safety Valve Special Swing Joint Adapters and Mounting Nozzles are available.

Standard construction is cast steel with bronze trim or all bronze. These valves are available in other materials upon special order.

The "Varec" Engineering Department and Flow Testing Laboratory are at your service to collaborate with you at any time on all phases of Tank Fittings and Safety Devices.

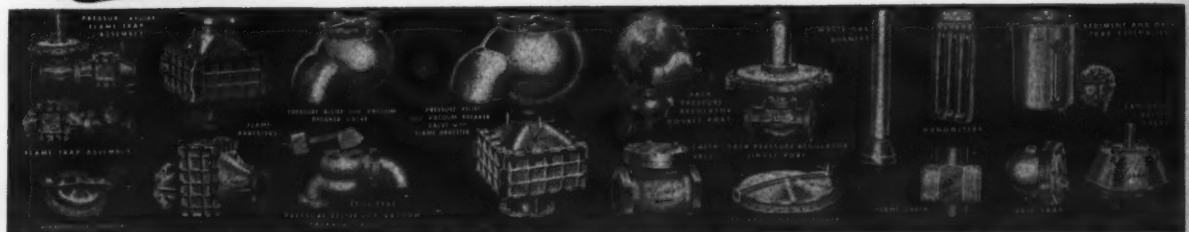
THE VAPOR RECOVERY SYSTEMS COMPANY

COMPTON, CALIFORNIA, U. S. A.

NEW YORK CITY — CHICAGO, ILL. — HOUSTON, TEX. — CLEVELAND, OHIO
Agencies Everywhere — Cable Address VAREC-COMPTON (All Codes)



"Varec" Catalog P-7 is now being distributed to executives, engineers, designers, and other personnel of refineries, petro-chemical plants, and other industries. It contains a wealth of information described by drawings, charts, photos, and engineering data. It is yours for the asking.



When inquiring specify CP 2861 . . . see information request blank, pgs. 2-3

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SPRAY NOZZLES

**to improve operations...
to lower your costs**

A highly specialized engineering experience is at your service, when you call upon Spraying Systems to solve your spray nozzle problems. Spraying Systems Spray Nozzles provide design for top spraying efficiency... plus a range of sizes totalling thousands of standard nozzles for exact selection in terms of capacity and spray characteristics. Write for your copy of Catalog No. 22 for all the facts.

SPRAYING SYSTEMS CO.

4023-B West Lake Street

Chicago 24, Illinois

Angle Type WHIRLJET

As an added service Spraying Systems supplies many special body designs for unusual installation requirements. For example, the WHIRLJET spray nozzle shown here produces a standard WHIRLJET hollow cone spray... but it is built for special installation where pipe connection must be parallel to direction of spray. Whatever your requirements, you are invited to make Spraying Systems your source.

SPECIALISTS IN SPRAY NOZZLE DESIGN AND MANUFACTURE

When inquiring specify CP 2862 — see handy form pages 2-3

New Literature

Use Thermodynamic Tables to Calculate Optimum Conditions for Processing

"Tables of Selected Values of Chemical Thermodynamic Properties," with additional tables issued quarterly for loose leaf insertion, is available. This is a comprehensive compilation of all available data in a form readily accessible to the engineer, chemist and physicist in scientific and industrial research. It makes possible the calculation of optimum conditions for manufacturing processes involving chemical reactions.

Presented in three series of tables. These are internally consistent in that all known physical and thermodynamic relations existing between properties in the several tables are satisfied by tabulated values of these properties. Technical Report 1100.

NATIONAL BUREAU of STANDARDS, Dept. CP, Washington 25, D. C.

When inquiring specify CP 2863 — see handy form pages 2-3

Charts Ease Figuring of Voltage Drop for Synchronous Motors

Aid in figuring voltage drop for synchronous motors, including voltage availability at terminals during starting, wire size and line capacity under various loading conditions, line length, available supply voltage, etc., will be found in a series of three curve-charts appearing in manufacturer's publication. Four sample work problems, are included.

In addition, 5 pages are devoted to the subject of

Cut the Cost of Corrosion with

HAVEG

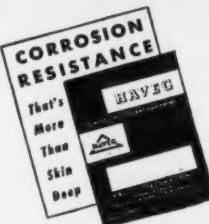
Process Equipment

Solid, structural, molded HAVEG insures the long life of chemical equipment because of its resistance to acids and alkalis through its entire mass.

HAVEG piping and fittings are stocked in sizes from 1/2" to 12" I.D. and flanged from 2" to 36" I.D. Tanks 10' in diameter and 12' high as well as other equipment, can be made to your specifications at low cost.

CORROSION RESISTANCE
That's More Than Skin Deep.

Send for Bulletin F-5 for full data.



HAVEG CORPORATION

NEWARK 7, DELAWARE
FACTORY - MARSHALTON, DELAWARE



When inquiring specify CP 2865 — see handy form pages 2-3

NEW CATALOG

Theory and Operating Characteristics of Steam Jet Ejectors for all classes of vacuum service. Single, Two, Three, Four and Five Stage Types. Non-condensing and Condensing types with Barometric or Surface Inter- and After-condensers for vacuum requirements in chemical plants, food plants, sugar refineries, oil refineries, power plants, etc. Steam Jet Vacuum Refrigeration for water cooling requirements of air conditioning and process applications. . . . This catalog No. 1462 reflects our over 30 years' pioneering experience. Write for it today on your company letterhead.

C. H. WHEELER MFG. CO.

1810 SEDGLEY AVE., PHILA. 32, PA.

Representatives in most principal cities



STEAM CONDENSERS—WATER COOLING TOWERS—STEAM JET EJECTORS

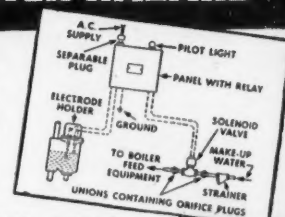
When inquiring specify CP 2864 . . . see information request blank, pgs. 2-3

LOW COST PROTECTION against LOW WATER HAZARD

● Everything but the high price . . . that's how the Johnson Control compares with the conventional type of automatic boiler water level control. Its electrical operation reduces the unusual elaborate system to only a few simple parts. Stationary electrodes use the boiler water level itself to make and break circuit to an electric relay, which in turn opens make-up valve, controls steam or electric pump, or operates low water alarm or cut-off.

No water piping is needed; electrode holder can be mounted right on water column. Hundreds of installations have proved that operation is as dependable as the flow of electricity.

THE JOHNSON CORPORATION
826 Wood Street, Three Rivers, Michigan



For pressures
to 300 lbs.
Write for bulletin

JOHNSON boiler water level control

When inquiring specify CP 2866 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

New Literature

external motor protection for large industrial drives, with photographs and cut-away drawings. Protective arrangements for motors are defined and illustrated, also duct arrangements for synchronous motors. "The E-M Synchronizer," Vol. 8, No. 2.

ELECTRIC MACHINERY MFG. COMPANY, Dept. CP, Minneapolis 13, Minn.

When inquiring specify CP 2867 — see handy form pages 2-3

★

Stainless Steel Wire Cloth Available in 32 Standard Meshes, Various Grades

32 standard meshes of stainless steel wire cloth, from 2 x 2 to 100 x 100, are shown actual-size in a 6-page folder. Literature includes two full pages of laboratory ratings on corrosion-resistance, alphabetically tabulated for quick reference. It includes discussion of new uses for this material in processing and other industries.

Discusses properties, effects of higher temperatures, use with other metals, also tensile strength, toughness, abrasion-resistance, outdoor exposure. Full specifications, including mesh sizes, gauges, space between wires, openings and weights, are presented. Listed uses include pump strainers or filters, grilles, sizing and screening, etc. Folder 596.

BUFFALO WIRE WORKS COMPANY, INC., Dept. CP, 419 Terrace, Buffalo 2, N. Y.

When inquiring specify CP 2868 — see handy form pages 2-3

★

Handy Appliance-Motor Repair Kits Contain Parts for Units Up to 1/2 and 3 hp.

A 4-page, illustrated bulletin describes assortments of electric motor repair parts, available in two handy kits. These are pictured, with contents, quantity, part number and frame sizes listed.

M-1 container is described as holding a variety of 61 replacement parts most commonly needed in repairing appliance-type motors up to and including 1/2 hp. It includes sleeve bearings, brushes and switches. The M-2 drawer-type container is sheet steel, designed for wide shop coverage. It contains nearly 700 replacement parts for repulsion-start induction and capacitor-start motors up to and including 3 hp. Bulletin MU-34B.

WAGNER ELECTRIC CORPORATION, Dept. CP, 6400 Plymouth Ave., St. Louis 14, Mo.

When inquiring specify CP 2869 — see handy form pages 2-3

★

56-Page Manual Gives Full Particulars on 5 Liquid Glycol Compounds

Five liquid glycol compounds are presented in an informative 56-page booklet. They include ethylene, diethylene, triethylene, propylene and dipropylene glycols. Booklet is sectionalized to simplify information-finding. Sections cover commercial uses, chemistry and physical properties.

Literature includes a combined properties table giving formula, molecular weight and other data on the glycols. It is profusely illustrated with tables and charts giving full particulars. "Dow Glycols."

THE DOW CHEMICAL COMPANY, Dept. CP, Midland, Mich.

When inquiring specify CP 2870 — see handy form pages 2-3

OCTOBER, 1947

Introducing The Amazing New

Indestructible GLASS COAT

Designed For Service Under All Laboratory Conditions

New, different and literally indestructible — there's no coat so serviceable under any and all laboratory conditions as the new Emil Greiner GLASS COAT.

Superbly tailored in strong Glass Fibre white cloth, the GLASS COAT is impregnated with Vinylite Plastic, making it light, luxuriously cool—and easily cleaned. Ends fire hazards, too, as neither plastic coating nor glass fibre material will support combustion.

Immune to the action of all alkalis and acids the GLASS COAT is unaffected by greases and oils — and all organic reagents except some ketones and esters which attack plastic, but not the glass fibre cloth. In addition, plastic coating prevents garment from holding electrostatic charges.

You may order this new GLASS COAT now for immediate delivery.

PRICE \$15

The **EMIL GREINER Co.**

161 SIXTH AVENUE

NEW YORK 13, N. Y.

Branch Office: 112 BROADWAY, CAMBRIDGE, MASSACHUSETTS

When inquiring specify CP 2871 . . . see information request blank, pgs. 2-3



NEWLY REVISED EDITION!

National's "Successful Case Sealing"

Booklet

Your Copy is Ready



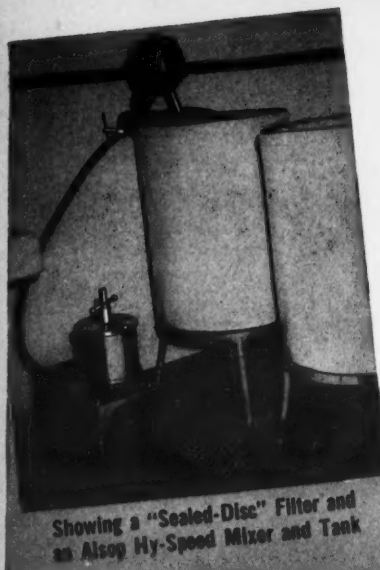
Address: 270 Madison Avenue, New York 16; 3641 So. Washenaw Ave., Chicago 32; 735 Battery Street, San Francisco 11; and other principal cities. In Canada: Meredith, Simmons & Co., Ltd., Toronto. In England: National Adhesives, Ltd., Slough.

EVERY TYPE OF ADHESIVE FOR EVERY INDUSTRIAL USE

When inquiring specify CP 2872 — see handy form pages 2-3

FOR THE POSITIVE REMOVAL OF

Dirt, Dust, Sludge,
and other undesirable impurities



Showing a "Sealed-Disc" Filter and an Alsop Hy-Speed Mixer and Tank

Alsop "Sealed-Disc" Filters are also setting new standards for brilliance and clarity on scores of different liquids.

The "Sealed-Disc" Filter combines high dependable efficiency and ease of operation — a combination that insures trouble-free filtration with low operating and maintenance cost.

Other exclusive features of this unique Alsop Filter include compactness, portability, and air-tight construction which makes it even drip and vapor proof. Available in Stainless Steel, Monel, Nickel Plated Brass and Bronze etc. Complete unit with or without pump.

Our bulletin No. 745 gives complete details, we'll gladly send you a copy. The Alsop Engineering Corporation, 210 Alsop Square, Milldale, Connecticut.

ALSOP
ENGINEERING CORPORATION
Filters • Filter Discs • Sheets • Mixers • Agitators

When inquiring specify CP 2873 — see handy form pages 2-3

Now Literature

Light, Flame-Proof Clothing Resists Acids, Caustics, Oils, Water and Solvents

Sample swatches of plastic-coated materials used in this manufacturer's line of safety and protective clothing are included in a 12-page catalog which covers the complete line. Samples are clear, single or double-coated, and double-coated duck base. Clear plastic and brown or white plastic coated fabrics are shown. Literature relates that most garments are available in these materials. They are flame-proof as well as water, acid, caustic, oil and solvent-resistant.

Items illustrated and described include aprons and suits, overalls, coveralls, jackets, laboratory coats, bibs, finger cots, boots, leggings, hats, hoods and slacks. Garments are described as light in weight, durable and long-wearing.

THE MILBURN COMPANY, Dept. CP, 3249 E. Woodbridge, Detroit 7, Mich.

When inquiring specify CP 2874 — see handy form pages 2-3

★

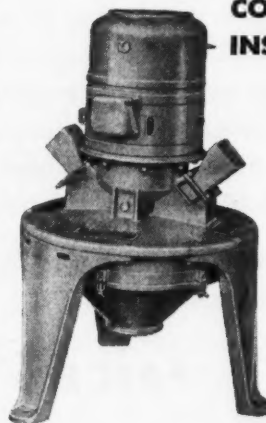
Automatic Steam Generators Produce Steam in as Little as 18 Minutes

Automatic steam generating units for light and heavy oil operation produce steam in as little as 18 minutes. They are described in an 8-page bulletin which includes a 2-page cut-away view clearly showing their interior construction. Features contributing to lower plant operating costs are pointed out.

Standard equipment on light and heavy oil units is described. Complete unit consists of boiler, oil-burner,

STOP INSECT SPOILAGE

USE "ENTOLETER" CONTINUOUS INSECT CONTROL

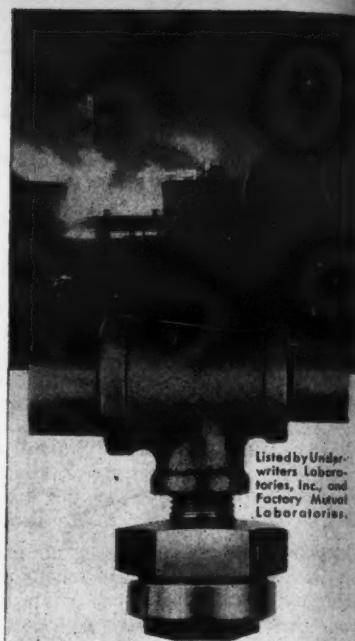


Avoid spoilage from insect infestation . . . insure the high standards of your products. You destroy all insect life in free flowing, dry materials with "ENTOLETER" Continuous Insect Control. It's in your interest to send now for new free Bulletin, fully explaining "ENTOLETER" Control. ENTOLETER DIVISION, The Safety Car Heating & Lighting Co., Inc., 1185 Dixwell Ave., New Haven 4, Connecticut.

ENTOLETER
CENTRIFUGAL MACHINES

CONTINUOUS INSECT CONTROL SYSTEM

When inquiring specify CP 2875 — see handy form pages 2-3

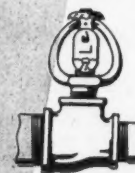


Listed by Underwriters Laboratories, Inc., and Factory Mutual Laboratories.

HIGH-VOLATILE LIQUID STORAGE NEEDS DEPENDABLE FIRE PROTECTION

Blaw-Knox Aquatomic Fog Nozzles have four features that assure dependable protection:

- 1 Non-clogging.
- 2 Maintain fog patterns at lowered pressures.
- 3 Drive fog to base of fire.
- 4 Give maximum cooling and quenching effect.



Also—

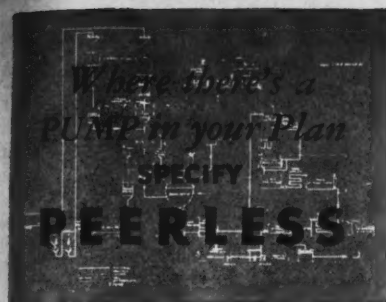
Blaw-Knox offers Standard Wet and Dry Pipe Systems, as well as Thermostatically Controlled Pre-Action and Deluge Systems.

Write for details.

Aquatomic
FOG NOZZLES
by
BLAW-KNOX
SPRINKLER DIVISION

831 Beaver Avenue, N.E., Pittsburgh 12, Penna.

When inquiring specify CP 2876 — see handy form pages 2-3



For diversified, continuous duty services in industrial, chemical and process plants, etc. Peerless centrifugal pumps incorporate many proven design features for extended pump life, minimum down-time and operational economy. They are manufactured in an extensive series of advanced types, sizes and capacities up to 70,000 G.P.M.



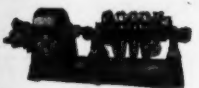
TYPE A
General Service
Pump

Peerless type A pumps afford top-flight, continuous duty operation with capacities from 50 to 70,000 g.p.m. Heads: 15 to 300 ft. All types of drives: 1 to 1000 h.p. Sizes: 2" to 42" discharge. Split-case, single stage, double suction type.



TYPE AF
Fire Pump

Peerless Underwriters' Approved fire pumps are available for all fire protection services. Capacities: 500 to 2000 g.p.m. Pressures: to 150 lbs. single and double stage types, for electric, engine, turbine drive or combinations.



TYPE B
Boiler Feed Pump

Peerless Type B multi-stage pumps are designed for boiler-feed, pipe line and refinery services delivering capacities up to 900 g.p.m. against pressures up to 700 lbs. For electric and other type drives from 60 to 350 h.p.



TYPE DS
Process Services
Pump

The ideal pump for chemical, oil, soap and similar process services. Capacities: 10 to 1500 g.p.m. Heads: up to 231 feet. Handles a wide variety of corrosive or non-corrosive liquids at temperatures up to 200° F.; pressures to 100 lbs. Single stage, single suction.

PEERLESS PUMP DIVISION • FOOD MACHINERY CORP.

Factories:

Indianapolis, Ind. • Quincy, Ill. • Los Angeles 31, Calif.
District Offices: Canton 2, Ohio; Philadelphia: Suburban Square, Ardmore, Pa.; Atlanta: Rutland Bldg., Decatur, Ga.; Dallas 1, Tex.; Los Angeles 31, Calif.



When inquiring specify CP 2877
— see handy form pages 2-3

New Literature

condensate return system, automatic control panel. Installation is said to require only the necessary electric, oil and water connections. Bulletin 1215.

ORR & SEMBOWER, INC., Dept. CP, Morgantown Road, Reading, Penna.

When inquiring specify CP 2878 — see handy form pages 2-3

★

Fast-Drilling Steel Spudders Speed Water, Oil, Gas Well Work

Fast-drilling steel spudders for water, oil and gas wells are the subject of an 8-page bulletin. Literature includes photographs of truck and trailer-mounted units, component parts and power unit, with labeled diagram, tabulated specifications and recommended drilling, casing and fishing tool outfits.

Descriptive information explains construction, features, etc. Use of a 31' steel mast, raised and lowered by hand winch, speeds rig up. Power unit capacity, 21 hp at 1600. Bulletin S-10-47.

INTERNATIONAL DERRICK AND EQUIPMENT COMPANY, Dept. CP, Marietta, O.

When inquiring specify CP 2879 — see handy form pages 2-3

★

High-Speed Hydraulic Press Inclines 10, 20 or 30° from Vertical

An inclinable hydraulic press for high-speed uses is described in a 4-page, illustrated folder. Diagrams show press inclined at 10, 20 and 30°. Tabulated specifications include 50 tons maximum pressure capacity, 4 tons during rapid traverse, 5 tons stripping pressure, also other vital data. 50 to 100 strokes per min., depending on work stroke.

Listed features include no clutch, crank or toggles; adjustable ram speeds, automatic or semi-automatic control, low hp requirements, etc. Bulletin 4703.

THE HYDRAULIC PRESS MFG. COMPANY, Dept. CP, Mount Gilead, O.

When inquiring specify CP 2880 — see handy form pages 2-3

★

Illustrated Pocket Pamphlet Tells How to Close and Open Cloth Bags

"How to Close and Open Cloth Bags" is a 4-page pocket folder illustrated with 13 explanatory sketches. Literature briefly and concisely explains how to machine-close bags, how to open machine-closed bags, and how to close bags by hand.

Convenient tables suggest correct amounts of cotton and burlap twine per thousand bags for both hand and machine-closing. Tabulated for various plies.

TEXTILE BAG MANUFACTURERS ASSOCIATION, Dept. CP, 100 N. LaSalle St., Chicago 2, Ill.

When inquiring specify CP 2881 — see handy form pages 2-3

★

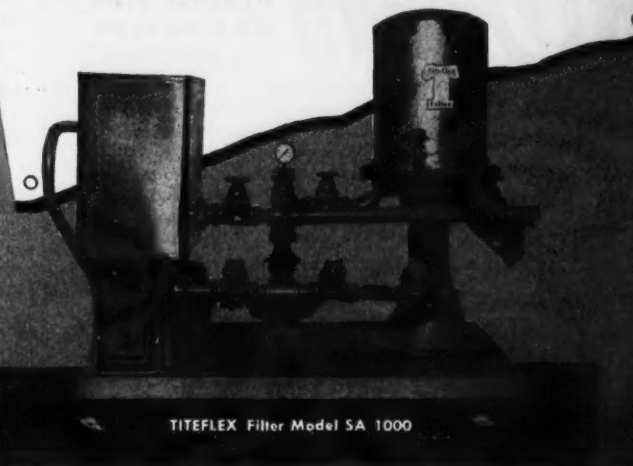
Have You Changed Your Address?

If you have changed your business address recently please notify the publishers promptly so that there will be no interruption in the delivery of CHEMICAL PROCESSING Preview. Please be sure to give both your old and new address; Include your title, the name of your company and the main product they manufacture. Full information will secure prompt action.

Titeflex

Industrial Pressure Filters

designed for
Highest Degree of Clarification Efficiency



TITEFLEX Filter Model SA 1000

Versatile in Performance

Titeflex

Industrial Filters perform efficiently over a wide range of filter applications . . . at both low and high pressures (up to 100 p.s.i.). All suspended foreign particles down to 1/10 of a micron are eliminated from the material being filtered. Due to the simplified cleaning method, a Titeflex Filter is ready for reoperation in a few minutes, either with the same product or with one of an entirely different nature.

Economical to Operate

Titeflex

Industrial Filters are designed for the greatest economy in operation. Among its cost-saving features are the following:

1. **LOW MATERIAL COST**—a few cents worth of filter aid only, per batch filtered. No expensive filter pads or asbestos sheets.
2. **LOW LABOR COST**—a completely sealed system requiring a minimum of labor.
3. **FAST CLEANING TIME**—takes a maximum of twenty minutes, regardless of size of filter.
4. **LARGE CAPACITY**—3 to 10 times that of other equipment with equal filtration area.

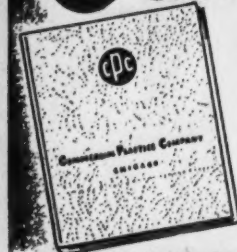
A TITEFLEX engineer is available at all times to advise you on your filtration problem. He will help you reduce operating cost, improve quality of the filtrate, and increase flow rates. Bulletin #120, just published, available on request.

Titeflex, Inc. 600 Frelinghuysen Ave., Newark 5, N. J.

Exclusive Manufacturers of Titeflex high quality products for more than 30 years

Sales Offices { CHICAGO CLEVELAND DETROIT PHILADELPHIA
LOS ANGELES BOSTON SAN FRANCISCO TORONTO

When inquiring specify CP 2882 — see handy form pages 2-3



for thousands of industrial applications where a tough, strong and durable piping system is desired. Saran pipe is light in weight, attractive in appearance, and resistant to most acids and chemicals. Consult our Engineering Department on your application, or write for our new Catalog P-47 just off the press.

COMMERCIAL PLASTICS CO.

201 No. WELLS ST. CHICAGO 6, ILL.

When inquiring specify CP 2883 — see handy form pages 2-3

New Literature

Wire Mesh Conveyors Useful in Processing Rubber Products, Soap, Chemicals, etc.

Wire mesh conveyor belts of wide utility are presented in a 4-page bulletin. Illustrations show various types being used in continuous treatment of rubber products, annealing bottles and holloware, cooking baked products, packaging ice cream, etc.

Literature includes close-up photographs of various meshes. It presents a check list of applications which include textiles, chemicals, soaps, metal quenching and finishing, tanneries, copper brazing, infra-red processing, tempering, hardening, tile glazing, overhead conveyors, sterilizers, tumbling conveyors and numerous food applications. Bulletin 86.

THE CAMBRIDGE WIRE CLOTH COMPANY, Dept. CP, Cambridge, Md.

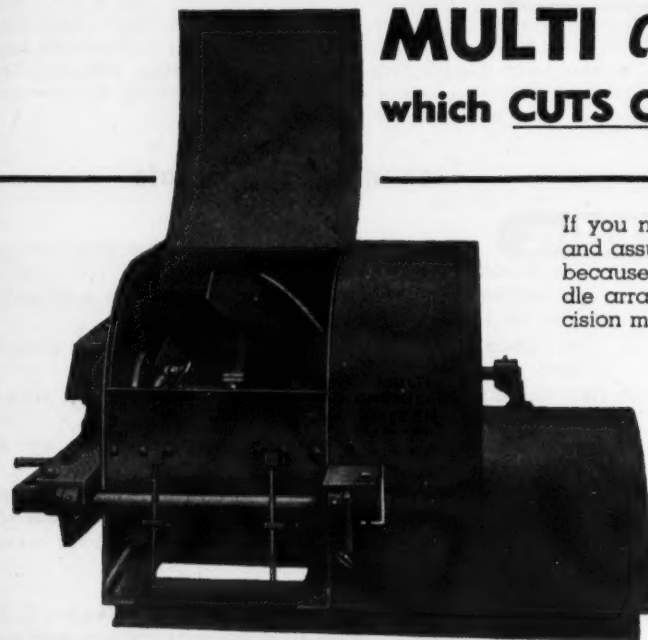
When inquiring specify CP 2884 — see handy form pages 2-3

★

Self-Adhesive, Removable Labels Speed Production; Carry Warnings, Diagrams

A series of illustrated, two-color folders shows many types of self-adhesive, removable labels for various uses. Each folder is devoted to labels for a specific field such as instructions, warnings and diagrams; labels for inspections, storage and speeding products in production; labels for wiring diagrams, patent numbers, etc., in the electrical industry.

It's the Paddle Arrangement in MULTI Chemical MIXERS which CUTS COST and SAVES TIME



THE MULTIPLEX CONCRETE MACHINERY CO.

ELMORE, OHIO

Specializing in Satisfactory Service Since 1906 on Complete Concrete Plant Equipment

When inquiring specify CP 2885 . . . see information request blank, pgs. 2-3

If you need a mixer that will save cost, save time and assure a perfect blend, you need a Multi-Mixer, because the Multi-Mixer has a special type of paddle arrangement which not only guarantees a precision mix but is designed to **prevent** the drag of the material against the liners, thus **reducing friction** which is so costly in power waste and repair bills. If you have a mixing problem, the chances are Multi-Mixer will solve it. Write for new descriptive literature.

- Sizes from 3 to 60 cubic feet
- Side, end or bottom discharge
- For all kinds of chemical mixtures
- 5 styles of drives
- Replaceable liners and paddles



Here is a Complete unit for
PRECISE TEMPERATURE
CONTROL

from -60°C. to +300°C.

The famous PRINCO "Magna-Set" Thermoregulator and the PRINCO Supersensitive Electronic Relay

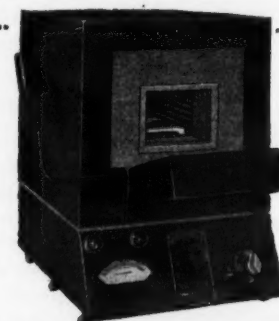
PRECISION THERMOMETER COMPANY
PRINCO
PRECISION INSTRUMENTS FOR INDUSTRY

1404 Brandywine Street, Philadelphia 30, Pa.

When inquiring specify CP 2886 — see handy form pages 2-3

SMALL —

but, Automatic and Accurate



Complete with automatic control, pyrometer and heat range switch.

\$152.50

This rugged laboratory size furnace is also excellently suited to small unit or batch production — it's built to take it! Maximum temperature 2000° F. featuring automatic stepless control and a combination heat range switch for (0° — 800° F., 800° — 1400°

F., and 1400° — 2000° F. All instruments are enclosed. All-steel construction. Counter-weighted doors. Two porcelain trays standard equipment I.D. 4 3/4" x 3 3/4" x 9". O.D. 19" x 21" x 21". Furnace throat 2".

K. H. HUPPERT CO.
6822 Cottage Grove Avenue
Chicago 37, Illinois

When inquiring specify CP 2887 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

New Literature

Features of this line of labels are described as including application without moistening, yet easily peeled off; unaffected by heat, cold, humidity or vibration; indefinite adherence to any clean, smooth surface. Literature also describes dumb-bell-shaped labels which loop around articles and stick by merely pressing the ends together; also die-cut labels which peel off in strips to prevent re-use.

EVERY ADHESIVE LABEL CORPORATION, Dept. CP, 36 W. Union St., Pasadena 1, Calif.

When inquiring specify CP 2888 — see handy form pages 2-3

Supplies Information on Prevention of Scale, Corrosion, in Water for Equipment Cooling

A 2-page leaflet supplies concise information on prevention of scale formation and corrosion in water used for equipment cooling. Of particular interest with reference to heat exchangers, condensers, water jackets of internal combustion engines, etc.

Bulletin outlines different types of cooling water systems, characteristics and requirements of each type, and briefly describes alternate methods best suited for preventing deposits of scale and organic matter and for eliminating corrosion. Bulletin 10.

LIQUID CONDITIONING CORPORATION, Dept. CP, 114 E. Price St., Linden, N. J.

When inquiring specify CP 2889 — see handy form pages 2-3

Bolts, Nuts, Washers and Screws Are Brass, Bronze, Silicon Bronze, Monel, Stainless

A 6 x 9" spiral-bound catalog with conveniently tabbed sections provides easy means of selecting bolts, nuts, washers and screws of brass, bronze, silicon bronze, stainless steel and monel metal. Literature is indexed and tabulated to supply data concerning a wide variety of types and sizes. Highly legible.

PAWTUCKET MANUFACTURING COMPANY, Dept. CP, 343 Pine St., Pawtucket, R. I.

When inquiring specify CP 2890 — see handy form pages 2-3

Hydraulic Elevating and Feeding Tables, Lift and Pallet Trucks Handle Many Materials

A general line of hydraulically-operated material handling equipment is shown, with descriptive matter, in a 4-page bulletin. Equipment includes platform-type lift trucks for skid loads; 2000, 4000 and 6000-lb. pallet trucks; portable elevating tables for many types of positioning and handling jobs; high lift trucks for general plant use, and sheet and strip feeding tables.

LYON-Raymond CORPORATION, Dept. CP, 3588 Madison Ave., Greene, N. Y.

When inquiring specify CP 2891 — see handy form pages 2-3

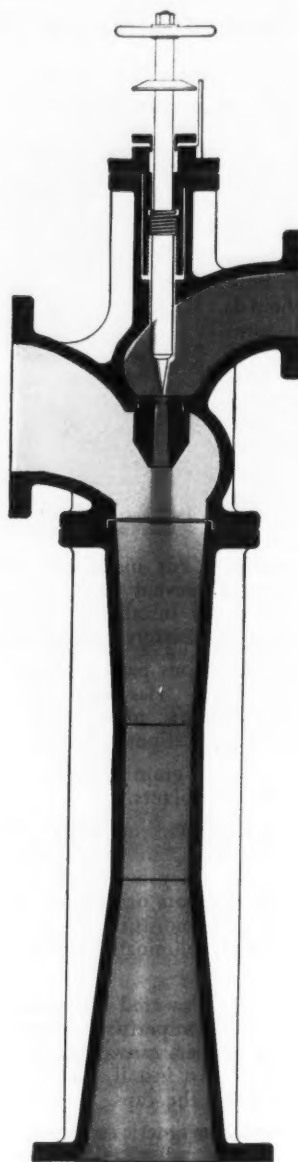
Swivel-Type Cable Terminals Eliminate Kinking, Permit Foul-Free Use

Cable terminals which are said to eliminate kinking and permit cables to swivel freely when load-free are described and illustrated in a 4-page bulletin. Close-up photographs show alloy steel cadmium-plated eye or fork-type fitting and stainless steel sleeve for swaging to wire rope cable.

MACWHYTE COMPANY, Dept. CP, Kenosha, Wis.

When inquiring specify CP 2892 — see handy form pages 2-3

an *h* "reason why"



as simple as



With an *h* Jet Compressor . . .

Circulation of steam for better heating . . .

Boosting of low pressure steam . . .

And mixing of gases in desired proportion . . .

Become as simple as ABC.

The *h* Jet Compressor . . .

Utilizes a jet of high pressure gas . . .

To entrain a low pressure gas . . .

Mix the two . . .

And discharge them . . .

At an intermediate pressure.

The *h* Jet Compressor is of simple construction . . .

With no rapidly revolving parts . . .

To get out of order . . .

Adjust or repair.

It reduces wear to a minimum . . .

Requires little maintenance . . .

Operates economically . . .

With maximum efficiency.

Write for *h* Bulletin 4-F . . .

It contains detailed information.



SCHUTTE and KOERTING Company

Manufacturing Engineers

1173 THOMPSON ST., PHILADELPHIA 22, PA.

JET APPARATUS • CONDENSERS AND VACUUM PUMPS • HEAT TRANSFER EQUIPMENT
VALVES • ROTAMETERS AND FLOW INDICATORS • GEAR PUMPS • STRAINERS
OIL BURNING EQUIPMENT • SPRAY NOZZLES AND ATOMIZERS • RADIATION TUBES

Schutte and Koerting have always quoted "Firm Prices" — a principle in good business, for all business.

When inquiring specify CP 2893 . . . see information request blank, pgs. 2-3

Reduce Costs with INFRA-RED



for

**DRYING CHEMICALS
HEATING PLASTICS
PROCESSING HIDES
DRYING INK ON CLOTH
CURING RUBBER PRODUCTS
DRYING CERAMICS
AND SIMILAR OPERATIONS**

ONLY FOSTORIA EVENRAY EQUIPMENT HAS ALL THESE ADVANTAGES—

1. **Lower Unit Operating Cost**—Greater efficiency of gold reflectors requires lower connected load—provides maximum utilization of energy.
2. **More Uniform Coverage**—Evenray equipment design gives extraordinarily even distribution of energy on products being processed—as little as 2% variation.
3. **Maximum Temperature Range**—Delivers up to 125 BTU's per square inch per hour. Accommodates from 80 watt to 1000 watt lamps for fastest processing according to job requirements.
4. **Maximum Energy Utilization**—Two-wall oven construction and gold interior reflecting surface provide most effective insulation; it puts the energy on the product.
5. **Complete Line of Equipment**—Evenray models are available for spot heating or full ovens, utilizing clear or reflector type lamps; permitting a choice for best results depending on nature of product to be processed. Flexibility of construction permits quick and easy alteration or addition for production changes.
6. **Approved Electrical Construction**—Listed under Re-examination service of Underwriters' Laboratories, Inc.



THE FOSTORIA PRESSED STEEL CORP.
FOSTORIA, OHIO
In Canada—Amalgamated Electric Corp., Ltd., and all Northern Electric Branches

Fostoria invites your request for analysis of any baking, drying, dehydrating or pre-heating problem.

Write for Literature
Ask for brochure EV-1146 which pictures and describes many applications with Evenray Systems.

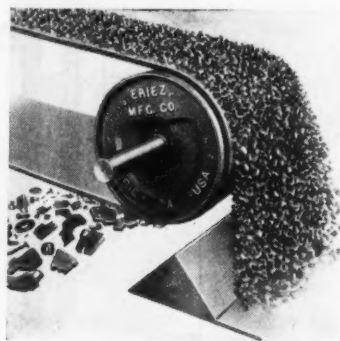
When inquiring specify CP 2894 — see handy form pages 2-3

Production Equipment

Non-Electric Pulleys Remove Metal from Conveyed Material

Self-cleaning units prevent sparking and tramp iron contamination of product

USES — Non-electric magnetic pulleys for removing metal, tramp iron and fine ferrous particles from bulk chemicals, food, coal, etc. For automatic separation of magnetic from non-magnetic materials conveyed by belt. For use in hazardous locations where possible sparking precludes use of electrically-powered magnetic separators.



Permanently magnetized non-electric pulley

For installation ahead of packaging equipment, to prevent tramp iron contamination of product. Also for installation ahead of crushers, spinneretts, grinders, cutters and pulverizers.

For removing fine ferrous particles from resins, carbon black, abrasives, clays. Has been used effectively in fertilizer, rubber mining, glass, cork, explosives and general chemical applications.

For cereal processing, grain elevators, feed and flour mills, food packaging plants.

FEATURES — Eliminates machinery damage and explosions caused by tramp iron. Self-cleaning. Requires no electric current. May be installed in any location regardless of the elements or unusual operating conditions. Unaffected by moisture, heat, cold or electrical variations. Virtually eliminates operation and maintenance costs.

DESCRIPTION — Powered by giant Alnico Alloy magnets, these pulleys perform automatic separation through belts of rubber, canvas, leather or other non-magnetic material. To install, merely drop shaft into bearings and put on the caps.

Zone of maximum magnetic strength extends axially across entire face of pulley, eliminating "dead" zones through which fine magnetic particles might otherwise escape. Bulletin 501-A.

ERIEZ MANUFACTURING COMPANY, Dept. CP, 2609 E. 12th St., Erie, Penna.

When inquiring specify CP 2895 — see handy form pages 2-3

Prefabricate Plating Units, Plants, for Lab, Production Uses

*Provide 2 to 4 times more current per gallon,
manufacturer reports*

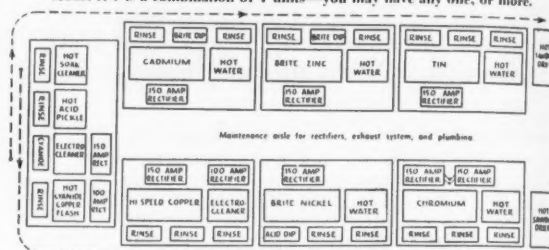
USES — Prefabricated plating units and plants for use by platers and manufacturers of all metal and plastic

products requiring plating. For laboratory or production purposes.

For plating all metals, including alloys, zinc, brass, bronze, cadmium, chromium, cobalt, copper, gold, iron, lead, nickel, palladium, rhodium, silver, tin; and for anodizing, electroforming and electropolishing.

SCHEMATIC PLAN OF MODEL II-7

Model II-7 is a combination of 7 units—you may have any one, or more.



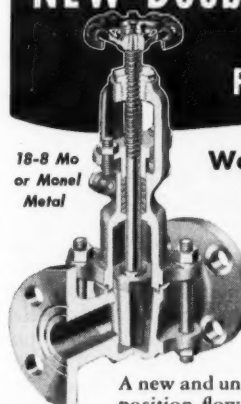
Maintenance made for rectifiers, exhaust system, and plumbing

A combination of prefabricated plating units

FEATURES — Reduce losses from plating rejects. Minimum installation, labor and operating costs. Built-in stainless steel drain system prevents spillage, eliminating need for cement floor. Plumbing and electrical lines quickly assembled into pre-designed positions, using only screwdriver and wrench.

Compact and space-saving. Designed for modern plating procedure.

NEW Double-Duty VALVE CRANE ALLOY PLUG GATE DESIGN



**Works as a Gate or Globe
with Equal Efficiency**

**FOR CORROSIVE SERVICES
IN PROCESS AND
CHEMICAL INDUSTRIES**

**WORKING PRESSURE:
150 lbs., Gas or Liquid**

A new and unique valve principle. In wide-open position flow is straight through, unrestricted, with discharge equal to that of a wedge gate valve. For throttling, Plug Gate design gives precise control of flow at high or low velocity, with same resistance to wire drawing and cutting as a globe disc valve.

Permits wide standardization; prevents misapplication. Simplifies valve selection and maintenance; easily repaired. Sizes from 1/2 to 2 in. Flanged or screwed ends.

WRITE FOR DESCRIPTIVE FOLDER AD-1685

CRANE CO., 836 S. Michigan Avenue, Chicago 5, Ill.
Branches and Wholesalers Serving All Industrial Areas

CRANE Everything for
Every Piping
System

VALVES • FITTINGS • PIPE • PLUMBING AND HEATING

When inquiring specify CP 2896 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

DESCRIPTION — Includes all necessary plating and process tanks, rectifiers, built-in gas, electrical, water, drain and exhaust lines. Shipped "knocked-down." Require only connections to main utility lines. Standard models for all types of plating and in wide range of capacities.

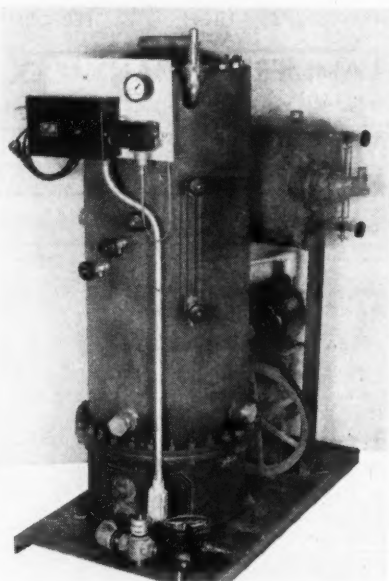
Where necessary, each plating tank has separate selenium rectifier with continuous voltage control over entire voltage range. Rinse, dip and pickle tanks are located in front of, or adjacent to, plating tanks. Manufacturer reports that these plants provide 2 to 4 times more current per gal. of plating solution than conventional units. May be custom-built at no extra cost.

UNIT PROCESS ASSEMBLIES, INC., Dept. CP, 75 E. Fourth St., New York 3, N. Y.

When inquiring specify CP 2897 — see handy form pages 2-3

Small HP Automatic Boilers for Continuous, Intermittent Service

In range 2-30 hp; shipped ready for easy installation; conserve floor space



Packaged boiler unit

USES — This automatic steam boiler — package type — is available for requirements covered in size range of 2-30 horsepower.

FEATURES — Completely automatic and delivered to user ready for service with all interconnecting piping and wiring neatly finished.

DESCRIPTION — The entire unit with boiler and all controls, pump, piping and wiring is mounted on one substantial steel base bedplate and is very compact, conserving floor space. When set in place, it is only necessary to remove the boxing, hook up water, steam and fuel connections and plug in the extension to wall socket for current.

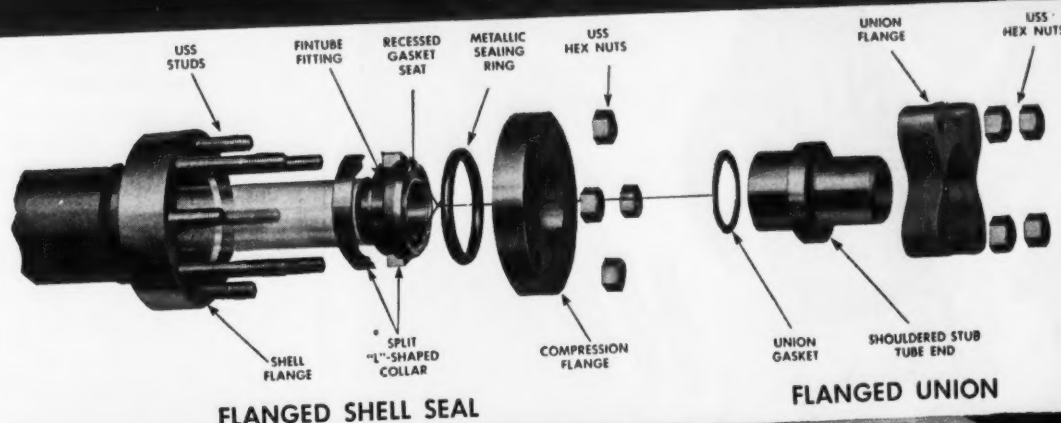
The boiler is shipped with all parts in place as illustrated.

ALERT ENGINEERING PRODUCTS, Dept. CP, 315 West Woodbridge St., Detroit 26, Mich.

When inquiring specify CP 2898 — see handy form pages 2-3

OCTOBER, 1947

THIS EFFICIENT HEAD END ASSEMBLY



featured exclusively in **BROWN FINTUBE** *Sectional Heat Exchangers*

DEVELOPMENT of this flanged head end and its adaption to sectional hairpin heat exchangers — another achievement of Brown Fintube engineers — enables users to avoid packed joints, glands, ground joint seals, screw unions, and all the operating and maintenance troubles resulting from ground joint and screw union construction.

With this construction, the seating surfaces of the shell flange and fintube fitting are in full view. They can be wiped clean of all grit and dirt before closing the seal, — not possible with inside ground joint construction. The soft metal ring overcomes any slight unevenness of the seating surfaces, and permits tight, leak-proof closures to be made time after time.

Enthusiastically endorsed by operating and maintenance departments of oil refineries and chemical processing plants, this ring joint seal is but one of the many exclusive features only Brown Fintube Sectional Heat Exchangers can give you. Brown's exclusive "one-piece" fintubes whose high heat transfer efficiency is maintained undiminished during the entire life of the tube, — our exclusive non-removable rear end construction, and replaceable stud bolting throughout are some of the others.

Send today for the fully descriptive catalog, and let our engineers help you in adapting Brown Fintube Sectional Heat Exchangers to your exact and individual requirements.

THE BROWN FINTUBE COMPANY
119 HURON STREET • ELYRIA, OHIO

MANUFACTURERS OF BROWN RESISTANCE WELDED INTEGRALLY BONDED ONE-PIECE FINTUBES, AND FINTUBE HEAT TRANSFER PRODUCTS

Send for
Bulletin
No. 452



When inquiring specify CP 2899 . . . see information request blank, pgs. 2-3



THE SMALL EXTINGUISHER.. WITH THE MIGHTY PUNCH!

FOR FIRE HAZARDS THAT DO NOT DEMAND
LARGER EQUIPMENT . . .

The new ANSUL 4 Dry Chemical Fire Extinguisher has fire stopping effectiveness far in excess of any other extinguisher of comparable size. Its compact size makes it ideal for locations where space is limited. The ANSUL 4 is easy to use . . . easy to recharge on-the-spot . . . and again ready to

STOP FIRE FASTER!

MADE BY THE MAKERS OF ANSUL-DUGAS DRY CHEMICAL FIRE EXTINGUISHERS, MODELS 20, 30, 150A AND 350A.

ANSUL CHEMICAL COMPANY
FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN

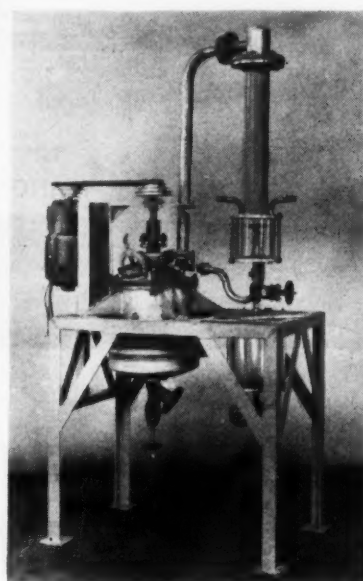
When inquiring specify CP 2900 — see handy form pages 2-3

Production Equipment

Small Kettle Provides Experimental Data

*Designed to meet specific
requirements*

USES — Unit is designed for use in the paint and varnish industry to run experimental batches of synthetic resins.



Laboratory experimental kettle

FEATURES — Use of the kettle provides for accurate and informative results.

DESCRIPTION — Heated with Dowtherm jacket and has a pyrex glass catch-all and receiver. Kettles are always specially designed to meet requirements.

BRIGHTON COPPER WORKS, INC.,
Dept. CP, Cincinnati, Ohio.

When inquiring specify CP 2901
— see handy form pages 2-3

Equipped for High and Low Pressure Hydrogenation

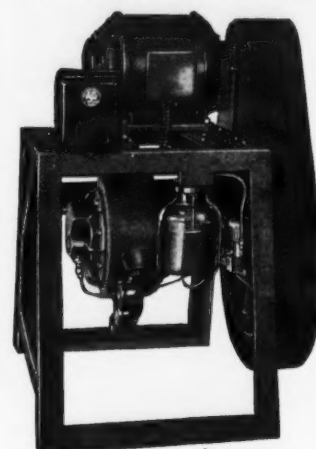
Hydrogenation is the subject of an 8-page leaflet which discusses research and development work of this electrochemical concern, its facilities for both high and low pressure hydrogenation, types of hydrogenation reactions being done, and available technical service. Bulletin 8.

HOOKE ELECTROCHEMICAL COMPANY, Dept. CP, Niagara Falls, N. Y.

When inquiring specify CP 2902
— see handy form pages 2-3

ROTARY LAMMERT QUIET VACUUM PUMPS

VACUUM TO 0.02 M.M. BAR. 3-580 C.F.M.



ENDURING HIGH VACUUM

Investigate!
MODEL SWMF.

NEW!

Continuous
Self
Purging
Principle

Expels the
Contaminating
Influence!
PERFORMANCE

LAMMERT & MANN CO.
215-21 N. WOOD ST. CHICAGO 12, ILL.
A HALF CENTURY OF SERVICE
TO SCIENCE AND INDUSTRY

When inquiring specify CP 2903 — see handy form pages 2-3

INTERNATIONAL



PORTABLE MIXERS

MEDIUM and HEAVY DUTY. Modern Design and many different types. Direct Drive, Gear Motor, Slow-Speed.

PERMANENT MIXERS

With or without Tanks—Top or Side Entrance—Stirrers of the propeller or turbine type.

DRY BLENDERS, AUTOCLAVES,
KETTLES AND DIGESTERS

CATALOG
On Mixers, Agitators,
Blenders, Ribbon
Mixers, etc.
No. 110 Now ready
on BULK MILLS—
Either catalog or
both sent on request.

INTERNATIONAL ENGINEERING, INC.
Dayton 1, Ohio.

NEW YORK, 15 Park Row • CHICAGO, 407 S. Dearborn
LOS ANGELES 4, 150 N. NORTON AVE.

When inquiring specify CP 2904 — see handy form pages 2-3

IF THESE OR SIMILAR LIQUIDS
ARE HANDLED IN YOUR PLANT

Investigate BLACKMER ROTARY PUMPS

Write for Bulletin 307—
FACTS ABOUT ROTARY
PUMPS

Acids
Alcohols
Asphalt
Beer
Butane
Dyes
Fuel Oil
Gasoline
Glue
Mash
Mayonnaise
Molasses
Oils
Paints
Rosin
Soaps
Soups
Syrups
Tar
Tomatoes
Yeast

which explains why the "Bucket Design" (swinging vane principle) automatically compensates for wear and how the buckets, when finally worn out, are easily replaced and the pump restored to its normal capacity.

BLACKMER PUMP COMPANY
1840 Century Avenue Grand Rapids 9, Michigan

**POWER PUMPS - HAND PUMPS
EZY-KLEEN STRAINERS**

When inquiring specify CP 2905 — see handy form pages 2-3

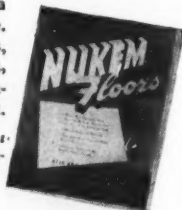
NUKEM Acid-Proof FLOORS stand up under the Toughest KIND OF SERVICE



Regardless of the particular conditions in your plant, one of the several types of NUKEM Acid-proof floor construction will solve your problem. For NUKEM floors are immune to all commercial acids, alkalis and solvents; are leak-proof and wear-proof; yet they are attractive and easy to keep clean. The first cost of a NUKEM floor is the last cost.

Wherever a corrosive condition exists, a NUKEM floor will end floor trouble. Chemical Plants, Laboratories, Steel Mills, Galvanizing Plants, Food Processing Plants, Dairies, Ice Cream Plants and similar industries appreciate NUKEM floors most.

Write or wire for the NUKEM representative nearest you. You'll find him helpful. Also ask for booklet de-



NUKEM Products CORPORATION
124 COLGATE AVE., BUFFALO 20, N. Y.

When inquiring specify CP 2906 — see handy form pages 2-3

Production Equipment

Motorized Valve Has Automatic "On-Off"

*Globe and butterfly units handle
steam, air, gas, oil or water*

USES — Motorized valve for processing machinery and equipment, heating and air-conditioning systems, heating and cooling coils, etc.

FEATURES — Compact. Provides automatic two-position (on-off) operation of valves for steam, air, gas, oil or water.

DESCRIPTION — Rugged, induction-type motor develops positive power-drive through a worm and spur gear reduction. Limit switches are adjustable. Sturdy, dust-tight and splash-proof cast iron housing.

Electrical connections are made to a terminal block. 1/2" threaded conduit is provided. Requires a 3-wire thermostat, pressure switch or similar instrument for actuation. Operates from 24, 110 or 220 volts AC power source.

Globe-type valves are all-bronze, single or double-seated, in 1/2 to 2-1/2" screw-end connections. Butterfly valves are iron body, bronze trim, in 1 to 4" screwed or flanged ends.

AUTOMATIC TEMPERATURE CONTROL COMPANY, Inc., Dept. CP, 34 E. Logan St., Philadelphia 44, Pa.

When inquiring specify CP 2907
— see handy form pages 2-3

★

Combine Cooling, Drying and Processing in One Unit

Multi-louvre dryers which are especially adaptable to materials requiring short treatment time and/or multiple drying temperatures are the subject of an informative 12-page booklet.

Installation views, typical layouts and dimensions of 10 standard sizes of dryer/cooler units are included. Extremely flexible, these combine drying, cooling and processing within one unit. A wide variation of temperature is possible, and air can be heated by steam coil, gas, oil, or coal-fired furnace. Book No. 2209.

LINK-BELT COMPANY, Dryer Division, Dept. CP, 300 W. Pershing Rd., Chicago 9, Ill.

When inquiring specify CP 2908
— see handy form pages 2-3

All that in ONE paint?

Acid
Resistant
Paint

Wet
Surface
Paint

Rubber
base
Paint

Fast
Dry
Paint

Fume
proof
Paint

Cold
Storage
Paint



Yes, Sir!!!

if it's

Rubberized DAMPCOAT ENAMEL

Here's a really "foolproof" paint! You can use it just about anywhere for general maintenance in chemical and processing plants. Being a Full Rubber Base paint it is completely waterproof and limeproof—making it ideal for concrete or plaster surfaces. Easy to apply—requires no special handling. Available in White, Black, Aluminum and 10 colors. Cut your maintenance worries by standardizing on the one paint that's "got everything!"

- Dries in about one hour
- Wet or dry surfaces safely painted
- Use on concrete, metal, plaster or wood
- Resists acid spillage and splashing
- Non-yellowing, even on steam pipes
- Unaffected by chemical fumes or salt air
- Withstands constant wetness
- Fire resistant—Fungus resistant



FIRST IN
RUBBER PAINT

FIRST IN
RUST INHIB-
ITIVE PAINT

THE WILBUR & WILLIAMS CO.

Dept. "C-30", Greenleaf & Leon Sts., Boston 15, Mass.

When inquiring specify CP 2909 — see handy form pages 2-3

AMIOCA

**100%
AMYLOPECTIN
STARCH**

UNIQUE IN

PASTE AND FILM
PROPERTIES

Clear
Cohesive
Non-jelling
Non-skinning
Highly Viscous
Adhesive

ABILITY OF PASTES TO RECOVER
ORIGINAL PROPERTIES AFTER FREEZING
EASE OF CONVERSION BY
AMYLOLYTIC ENZYMES
REMOISTENING PROPERTIES
OF ITS DRIED FILMS
COMMERCIALY AVAILABLE
IN LARGE QUANTITIES

AGAIN AVAILABLE: AMIOCA is the new commercial starch obtained from domestically bred waxy maize. The unique properties of pure AMIOCA and its modifications — as successfully developed by National Starch Products — should be studied by the food, paper and textile fields. These properties should be compared with tapioca, potato and other tuber starches; and with natural gums such as arabic, tragacanth, karaya and other thickeners.

DESCRIPTION: AMIOCA is unique among starches because it consists entirely of amylopectin. It is generally believed to be a more or less branched or non-linear polymer of glucose. Its molecules, being highly hydrated and unable to readily associate, give rise to highly viscous, clear, cohesive pastes free from any tendency to thicken or jell on ageing.

Other commercial starches such as corn, tapioca, wheat, potato, etc., contain two components — usually 20-30% amylose in addition to amylopectin. Amylose is believed to be a linear or straight chain polymer of glucose. In pastes, its molecules tend to associate with each other and with the amylopectin molecules. This tendency leads to thickening, jelling and increased opacity.

AMIOCA comes as a white powder or in pearl form resembling ordinary corn starch. It gelatinizes sharply, starting at 70°C and proceeding over a range of only 8°C. It has a peak hot viscosity of approximately 4,000 centipoises in 20 parts of water; and 15,000 centipoises in 10 parts of water. AMIOCA modifications range from materials which require from 20 or more parts of water to those requiring less than 1 part of water at a comparable viscosity.

POSSIBLE APPLICATIONS: AMIOCA and AMIOCA modifications offer *textile sizings* which are non-jelling with good adhesive and film forming properties and with excellent rinsability . . . *textile finishes* with clear, glossy films, and resistance to iron-browning . . . *grease-proof tub sizings* with non-jelling properties that permit high solids application . . . *paper beater sizings* that are non-jelling and permit a high degree of hydration . . . *paper coatings* with higher solids and greater binding power at a given viscosity . . . *foods* with modified jelling properties, clarity and freedom from cereal taste . . . *frozen foods* with ability to recover their original properties after defrosting . . . *drum dried or dehydrated foods* with better stability and clarity.

WE'RE READY to match our research and laboratory efforts with yours in further exploration of Amioca starch applications to your products. Address: National Starch Products, Research and Development Labs., 270 Madison Avenue, New York City. Plants: Dunellen, N. J., Chicago, Indianapolis and San Francisco. In Canada: Meredith, Simmons & Co., Ltd., Toronto and Montreal. In Holland: Nationale Zetmeelindustrie, N. V. Veendam.

**National
STARCH PRODUCTS**

STARCHES — AND SPECIALTIES WITH EASILY DEMONSTRATED SUPERIORITY

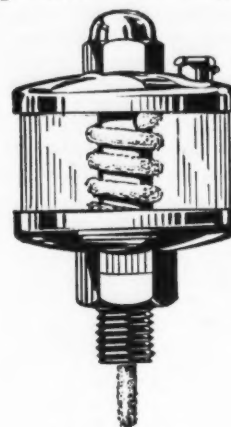
When inquiring specify CP 2910 — see handy form pages 2-3

Production Equipment

Filters, Feeds Oil To Busy Bearings

*Dust-proof, wick-fed oiler has
visible oil supply*

USES — Series of wick feed oilers for feeding filtered oil to continuously-



Wick feed oiler

operating bearings, similar applications. For dusty surroundings.

FEATURES — Dirt and sediment cannot reach or injure bearings. Transparent oil reservoir indicates at a glance when refilling is necessary, thus guarding against empty oilers and possible bearing failures. Being unbreakable, it is useful in applications where hazards of broken glass must be eliminated.

DESCRIPTION — Unbreakable "Lucite" reservoir is mounted between cork gaskets in sturdy brass body. It requires no adjustments. Hinged, self-closing lid permits filling. Parts are fully replaceable.

To clean or change oiler, top cap nut is unscrewed. Glass is available for temperatures above 150° F.

OIL-RITE CORPORATION, Dept. CP, 3461 S. 13th St., Milwaukee, Wis.

When inquiring specify CP 2911
— see handy form pages 2-3

★

Infra-Red Detector Indicates Thermal Radiation Change

10-page planographed circular describes and illustrates an infra-red detector which detects changes in thermal radiation. Literature describes construction, applications, operational procedure, etc.

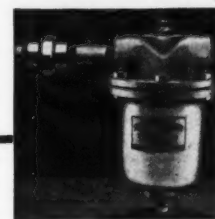
THE EPPLEY LABORATORY, INC., Dept. CP, Newport, R. I.

When inquiring specify CP 2912
— see handy form pages 2-3

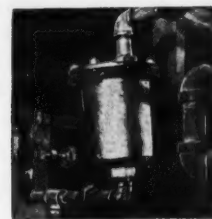
**WITH FITTINGS
SO SCARCE
save 7 per trap with
SUPER-SILVERTOP**

Pipe fittings are so hard to get that it makes sense to save as many as possible on every installation. When you use Super-Silvertop Steam Traps, you save up to nine fittings per trap over the ordinary inverted bucket trap design. But that's not all. The saving in installation time (as much as 60 minutes per trap) is not to be "sneezed at" these days. Besides, Super-Silvertop gives you these savings throughout the size and pressure range—in the big No. 24 and 25 traps and steel traps as well as in the smaller and lower pressure ranges. Send for your free copy of the book "How To Choose a Steam Trap." Gives complete information and much helpful data for everyday use.

THE V. D. ANDERSON COMPANY
1954 WEST 96th STREET • CLEVELAND 2, OHIO



Super-Silvertop showing one nipple and one union needed.



Conventional trap using seven fittings and two unions.

When inquiring specify CP 2913 — see handy form pages 2-3

**Quickly
Accurately** MEASURES POTENTIAL
WEAR RESISTANCE



The TABER ABRASER surface-tests
... paint - textiles - leather - rubber

This fast, scientific method for measuring resistance to surface abrasion reveals the pertinent facts in a matter of minutes. Eliminates time-consuming, expensive performance tests. Used by hundreds of manufacturers for determining surface wearing qualities of paint, lacquer, plastics, leather, rubber, paper, metals, etc.



YOURS on request — Manual explaining fully the Taber Method and the reasons why it pays to pre-test. Also included — brochure on stiffness and resilience testing with the Taber V-5 Stiffness Gauge.)

TABER INSTRUMENT CORP.
106 Goundry St., No. Tonawanda, N.Y.

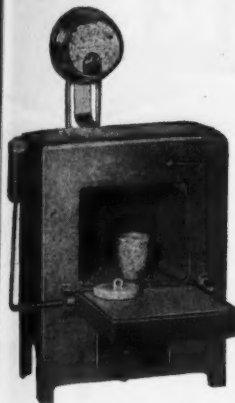
The Taber Test Proves What Wears Best

When inquiring specify CP 2914 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

Knob Regulates Lab Furnace Between 500 and 1850°F.

Control is nearly 100% compensating for normal fluctuations in line voltage



Model GTP laboratory furnace

USES — Electric furnace for laboratory use.

FEATURES — Stepless heat control permits raising or lowering furnace temperature simply by moving control knob to left or right. Easily portable.

Manufacturer reports Temco control is nearly 100% compensating for normal fluctuations in line voltage.

DESCRIPTION — Permits selection and automatic maintenance of any temperature between 500 and 1850° F. Control is available for use on DC or AC of any cycle.

Developed from one of manufacturer's previous models, model GTP has interior dimensions 4" wide, 3 3/4" high and 3 3/4" deep. Equipped with dependable indicating pyrometer calibrated both in Fahrenheit and Centigrade scales.

Heating element is coiled from heavy gauge alloy, is embedded in sides, top and bottom of chamber, providing greater protection and uniform heat distribution. Body and door are one-piece aluminum castings. Overall unit weight, 15 1/2 lbs. For 115 and 230 volts AC and DC.

THERMO ELECTRIC MANUFACTURING COMPANY, Dept. CP, 474 W. Locust St., Dubuque, Ia.

When inquiring specify CP 2915 — see handy form pages 2-3

★

Diffusion Pump Has Capacity of 8500 CFM at 0.1 Microns

Combines high capacity at high vacuum with the ability to work against high forepressure

USES — Pump is recommended for the unusual requirements of cyclotrons and similar equipment, for large coating operations, large vacuum furnaces, or other industrial applications.

FEATURES — Works against forepressures as high as 250 microns which eliminates the need for a booster in many applications; and it occupies comparatively small space. Can be operated directly from mechanical forepump.

DESCRIPTION — Type H-16 is an all metal three-stage oil diffusion pump. Inlet diameter is 16" and overall height is 56". Blankoff occurs at 0.001 microns.

Jets are spun aluminum, all other parts of the pump which are exposed to vacuum are stainless steel to minimize corrosion and outgassing. Heaters are externally mounted and easily replaceable. Heat input is 2250 watts.

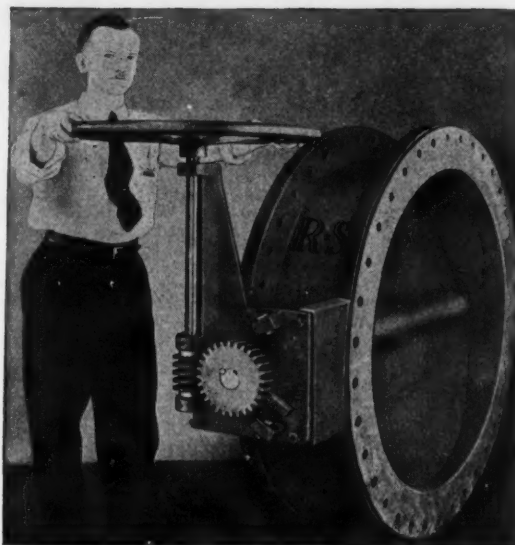
NATIONAL RESEARCH CORPORATION, Dept. CP, Cambridge 42, Mass.

When inquiring specify CP 2916 — see handy form pages 2-3

OCTOBER, 1947



ISSUED PERIODICALLY BY R-S PRODUCTS CORPORATION, PHILADELPHIA 44, PA., FOR THOSE CONCERNED WITH FLOW CONTROL AND SHUT-OFF



One of the Large Size R-S Rubber-seated Valves

Picture shows an R-S 42-inch Standard Iron Valve equipped with R-S rubber spool (patent pending) for positive shut-off.

The replaceable rubber spool is available for all R-S Valves up to 72-inch. We are working on sizes up to 108-inch diameter.

Many and rigorous tests have proved the remarkable wearing quality of the rubber spool. One user, handling powdered glue, arranged a test which would automatically open the valve wide, then slam it tight with a 50-pound counterweight. At the end of 9000 consecutive closings from the wide open position the valve was still drop-tight at 115 p.s.i.

Perfect closure is attained even

at the shaft-bosses, by the wedge-like action of the disc as it closes within the spool and bunches up the rubber around its periphery.

Replacement of the rubber spool is simple, though it has never yet been necessary in service. Valve body is freed from the pipe, disc removed, and the spool folded and slipped out of the valve. A new spool is folded and slipped in similarly. The flanges are smoothed down and the valve re-assembled. No regular gaskets are required when the rubber spool is used and this fact alone represents a substantial economy.

The R-S Rubber-seated valve affords remarkably good resistance to abrasion.

Lest You Forget!

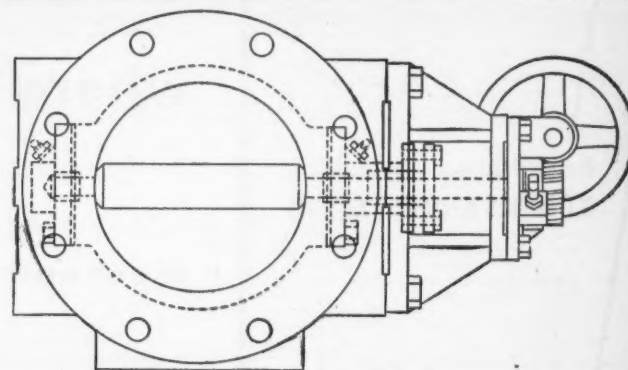
You can't buy R-S Valves in the corner drug-store but there is a surprising number of places where you *can* buy them or reach a representative who will call on you with drawings, pictures, data, characteristic curves, prices and whatever else you need to know. We can also supply you direct from the factory with very complete information if you will inform us of your requirements. Tell us size of valve, type of flanges, material to be controlled, line pressure, pressure drop, operating temperature, rate of flow, and method of control desired.

The list of representatives' locations is complete as this issue of R-S ValveEvents goes to press, but it is a steadily growing list. In all these cities you will find the representative's address and phone number in the local phone book under the heading "R-S Products Corporation, Valves." The list of representatives' locations follows:

Atlanta	Johnson City, Tenn.
Appleton, Wis.	Knoxville
Baltimore	Los Angeles
Birmingham, Ala.	Milwaukee
Bloomington, Ill.	Minneapolis
Boston	Monterrey, (Mexico)
Buffalo	New York
Caracas, (Venezuela)	Panama, (Panama)
Charlotte, N. C.	Philadelphia
Chattanooga	Pittsburgh
Chicago	Portland, Ore.
Cincinnati	Richmond, Va.
Cleveland	St. Louis
Corpus Christi	San Francisco
Denver	Santiago, (Chile)
Des Moines	Seattle
Detroit	Syracuse
Houston	Tulsa
Indianapolis	Youngstown

New 50-pound Valve

Drawing shows details of the new R-S 50-pound Class B Iron Valve. This was designed especially for rugged hydraulic service with the usual R-S safety factor to care for line stresses, water-hammer, and other service abuse. The new valve is in demand for circulating water lines for condenser service. It is available with 25-pound or 125-pound American Standard flanges. Like all R-S Valves, it may be ordered in any material that can be cast or welded, including steel with Series 15 150-pound American Standard flanges. The new valve has the characteristic R-S angular seating disc and may be equipped with the patented R-S Rubber Spool for positive shut-off. (See pic upper left).



Complete R-S Valve Installation Data

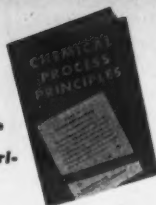
Engineers like the complete dimensional data supplied for R-S Valves. Dimensions are tabulated by standard sizes under stock types and identified by letters corresponding to detailed drawings which accompany the tables. Six full pages of R-S Products' Catalog No. 14-B (copy on request to R-S Products Corporation, Wayne Junction, Philadelphia 44, Pa.) are devoted to this basic installation data.

JML:V-31



When inquiring specify CP 2917 . . . see information request blank, pgs. 2-3

3 authoritative
volumes based on
wide industrial experi-
ence



CHEMICAL PROCESS PRINCIPLES

By O. A. HOUGEN and
K. M. WATSON
Professors of Chemical Engineer-
ing, University of Wisconsin

Part I — MATERIAL AND ENERGY BALANCES

Part I places particular emphasis on concise and sound applications of thermophysics, thermochemistry, and the first law of thermodynamics. The book also discusses recovery or stripping of adsorbed gases; calculating material balances; calculating mean heat capacities of gases; deriving consistent vapor-pressure data; predicting the pressure and composition of the vapor in equilibrium with a solution; expressing vapor content of a gas, etc.

1943 452 Pages \$5.00

Part II — THERMODYNAMICS

Part II of CHEMICAL PROCESS PRINCIPLES develops the fundamental principles of thermodynamics with particular emphasis on generalized methods used for estimating thermodynamic properties from a minimum of experimental data. The application of these principles to problems dealing with the compression and expansion of fluids, power generation, and refrigeration is also discussed. No attempt is made to treat the mechanical or equipment problems of these operations.

1947 412 Pages \$5.00

Part III — KINETICS AND CATALYSIS

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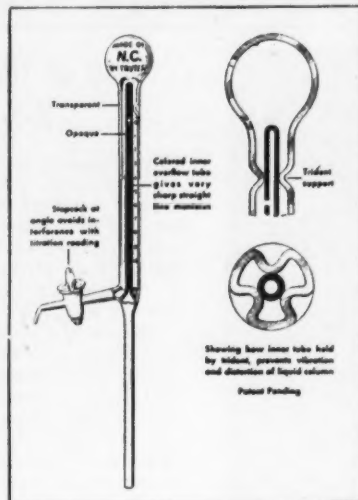
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When inquiring specify CP 2918
— see handy form pages 2-3

Production Equipment

Burette Saves Recording and Calculating Each Titration

*Acid, alkali-resistant 10, 25 ml. units project
sharp meniscus on yellow background*



Automatic burette

projects sharply visible, straight hair-line meniscus.
Column is fused to burette at bottom and supported at

USES — Automatic burette for precise handling of solutions in laboratory work.

FEATURES — Resists alkaline and acid solutions. No waste in filling. Eliminates need for recording and calculating each titration. Easily read; reduces eyestrain.

DESCRIPTION — Two standard sizes: 10 and 25 ml. Made of non-corrosive glass. Inner column of special heat-fired yellow tubing projects

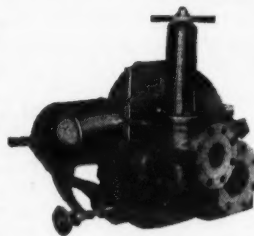
where can you use



mechanical-drive turbines?

In many chemical plants, General Electric mechanical-drive turbines are doing double duty. First, they act as reducing valves to bring high-pressure process steam down to utilization levels and second, they provide low-cost power for:

- explosive, or hot or damp atmospheres
- standby service
- adjustable-speed drives
- auxiliary power generation

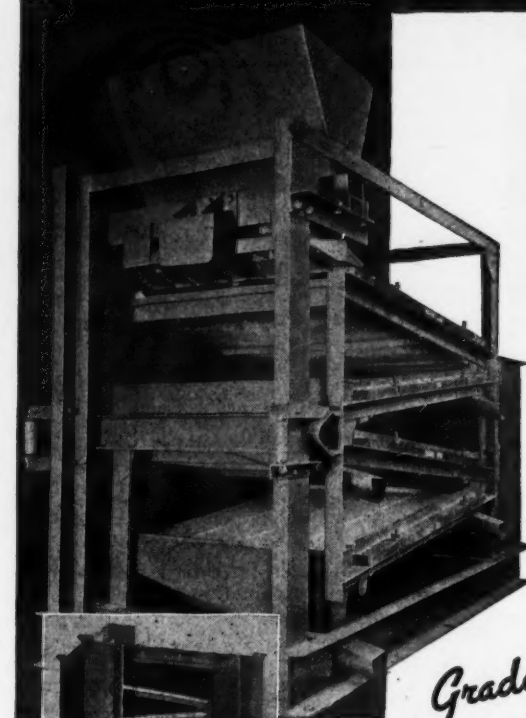


QUICK DELIVERY — Average delivery time for standard (single-stage, shaft-governed) turbines is 15 weeks from receipt of order and complete application information. Apparatus Dept., General Electric Co., Schenectady 5, N. Y.

GENERAL ELECTRIC

When inquiring specify CP 2919 — see handy form pages 2-3

EXOLON Multi-Form GRADERS



● ACCURACY
OF GRADES
● LONG
SCREEN LIFE
● COMPACT
DESIGN
● LOW
POWER COSTS

*Grades Any Dry
Granular Material*

Abrasive grain, garnet, steel grit and steelshot, nepheline-syenite, feldspar, quartz, silica sand, clays, bauxite, chemicals, pigments, food products, coke, salt, roofing granules.

The Exolon Multi-Form Grader consists of a series of inclined screens vibrated on a horizontal plane, which will grade material running between 4 and 250 mesh.

Models are made in a variety of sizes to meet commercial and laboratory needs; may be cabinet-enclosed if desired.

A test of your material at no charge will gladly be made by our laboratory.

If you have a problem involving the separation of weakly magnetic materials, write for details on the Exolon High Intensity Induction Magnetic Separator.



THE EXOLON COMPANY

947 East Niagara Street, Tonawanda, New York

Manufacturers of SILICON CARBIDE and ALUMINUM OXIDE ABRASIVES

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CHEMICAL PROCESSING Preview

Production Equipment

top by a trident, as shown in illustration. This absorbs shock, reduces breakage. Pressure applied to bulb at reservoir admits solution. Burette is filled above zero mark, then adjusts automatically to zero by releasing pressure, the excess draining back into reservoir without formation of air bubbles.

Tight sealing of assembly prevents contamination, while an ample supply of reagent may be permanently stored in the large reservoir. Location of stopcock at an angle makes for quick, easy control, also prevents interference with burette reading.

TRUTEST LABORATORIES, Inc., Dept. CP, 20 S. 33rd St., Philadelphia 4, Penna.

When inquiring specify CP 2921 — see handy form pages 2-3

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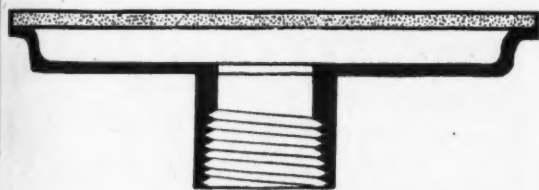
Porous Stainless Steel Spargers Have Low Pressure Drops

*Elements have fine porosities ranging from
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USES — Porous stainless steel elements are used in sprinkling, dispersion and sparging applications.

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DESCRIPTION — These units consist of a disc of porous stainless steel, which is welded about its periphery to a shallow stainless steel dish. Dish is welded to a



Cross-section of stainless sparger.

standard female pipe connection. In use the required number of pipe connections are provided at the bottom of the tank, and the spargers are then screwed into place. Available in fine porosities, ranging from 5 to 65 microns. Finer grades yield a large volume of very fine gas bubbles.

Diameters available in the porous elements are 1", 1½", 2½", and 3½", and the pipe connection sizes are ⅛", ¼", ⅜" and ½". Special sizes and shapes can be supplied.

MICRO METALLIC CORPORATION, Dept. CP, 193 Bradford St., Brooklyn 7, N. Y.

When inquiring specify CP 2922 — see handy form pages 2-3

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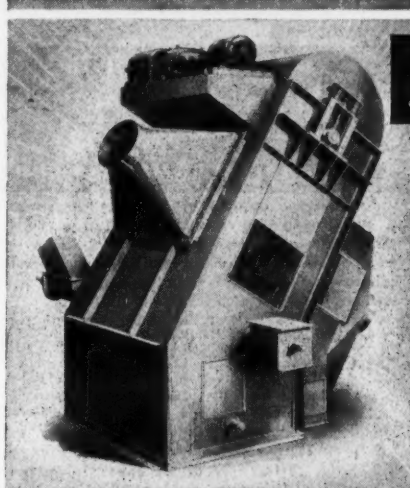
OCTOBER, 1947

**We invite you
to test our claims
in the DRYING of
your own product . . .**

Because the drying process is applied to a wide variation of materials and conditions, Link-Belt invites you to test our claims for superior and more economical drying of *your* material in our special laboratory where test materials are dried or cooled under regular operating conditions.

**See your own
material dried on
a test run at
LINK-BELT'S DRYER
Laboratory . . .**

See your own material dried and see an accurate analysis of the operation in our own laboratory. Link-Belt Research Engineers are at your service. They are thoroughly qualified and equipped to assist you in arriving at the best solution of your drying problems. A test run on your product can be arranged at your convenience . . . simply write or phone your nearest Link-Belt Plant or Office.



**... then duplicate that ideal dryer
performance in your plant on
regular daily production . . .**

Link-Belt Company makes an extensive line of Dryers and Coolers. The advice of Link-Belt experienced Engineers need not be influenced by any consideration other than the best method and equipment to serve your needs.

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LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40,
Atlanta, Dallas 1, Minneapolis 5, San
Francisco 24, Los Angeles 33, Seattle 4,
Toronto 8. Offices in Principal Cities.



When inquiring specify CP 2923 . . . see information request blank, pgs. 2-3

Knob Regulates Lab Furnace Between 500 and 1850°F.

Control is nearly 100% compensating for normal fluctuations in line voltage

USES — Electric furnace for laboratory use.

FEATURES — Stepless heat control permits raising or lowering furnace temperature simply by moving control knob to left or right. Easily portable.

Manufacturer reports Temco control is nearly 100% compensating for normal fluctuations in line voltage.

DESCRIPTION — Permits selection and automatic maintenance of any temperature between 500 and 1850° F. Control is available for use on DC or AC of any cycle.



Model GTP laboratory furnace

Developed from one of manufacturer's previous models, model GTP has interior dimensions 4" wide, 3 3/4" high and 3 3/4" deep. Equipped with dependable indicating pyrometer calibrated both in Fahrenheit and Centigrade scales.

Heating element is coiled from heavy gauge alloy, is embedded in sides, top and bottom of chamber, providing greater protection and uniform heat distribution. Body and door are one-piece aluminum castings. Overall unit weight, 15 1/2 lbs. For 115 and 230 volts AC and DC.

THERMO ELECTRIC MANUFACTURING COMPANY, Dept. CP, 474 W. Locust St., Dubuque, Ia.

When inquiring specify CP 2915 — see handy form pages 2-3

★

Diffusion Pump Has Capacity of 8500 CFM at 0.1 Microns

Combines high capacity at high vacuum with the ability to work against high forepressure

USES — Pump is recommended for the unusual requirements of cyclotrons and similar equipment, for large coating operations, large vacuum furnaces, or other industrial applications.

FEATURES — Works against forepressures as high as 250 microns which eliminates the need for a booster in many applications; and it occupies comparatively small space. Can be operated directly from mechanical forepump.

DESCRIPTION — Type H-16 is an all metal three-stage oil diffusion pump. Inlet diameter is 16" and overall height is 56". Blankoff occurs at 0.001 microns.

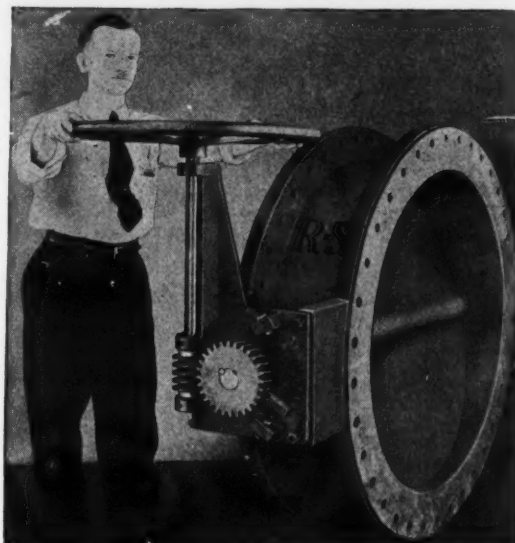
Jets are spun aluminum, all other parts of the pump which are exposed to vacuum are stainless steel to minimize corrosion and outgassing. Heaters are externally mounted and easily replaceable. Heat input is 2250 watts.

NATIONAL RESEARCH CORPORATION, Dept. CP, Cambridge 42, Mass.

When inquiring specify CP 2916 — see handy form pages 2-3

R-S valvEvents

ISSUED PERIODICALLY BY R-S PRODUCTS CORPORATION, PHILADELPHIA 44, PA., FOR THOSE CONCERNED WITH FLOW CONTROL AND SHUT-OFF



One of the Large Size R-S Rubber-seated Valves

Picture shows an R-S 42-inch Standard Iron Valve equipped with R-S rubber spool (patent pending) for positive shut-off.

The replaceable rubber spool is available for all R-S Valves up to 72-inch. We are working on sizes up to 108-inch diameter.

Many and rigorous tests have proved the remarkable wearing quality of the rubber spool. One user, handling powdered glue, arranged a test which would automatically open the valve wide, then slam it tight with a 50-pound counterweight. At the end of 9000 consecutive closings from the wide open position the valve was still drop-tight at 115 p.s.i.

Perfect closure is attained even

at the shaft-bosses, by the wedge-like action of the disc as it closes within the spool and bunches up the rubber around its periphery.

Replacement of the rubber spool is simple, though it has never yet been necessary in service. Valve body is freed from the pipe, disc removed, and the spool folded and slipped out of the valve. A new spool is folded and slipped in similarly. The flanges are smoothed down and the valve re-assembled. No regular gaskets are required when the rubber spool is used and this fact alone represents a substantial economy.

The R-S Rubber-seated valve affords remarkably good resistance to abrasion.

Lest You Forget!

You can't buy R-S Valves in the corner drug-store but there is a surprising number of places where you can buy them or reach a representative who will call on you with drawings, pictures, data, characteristic curves, prices and whatever else you need to know. We can also supply you direct from the factory with very complete information if you will inform us of your requirements. Tell us size of valve, type of flanges, material to be controlled, line pressure, pressure drop, operating temperature, rate of flow, and method of control desired.

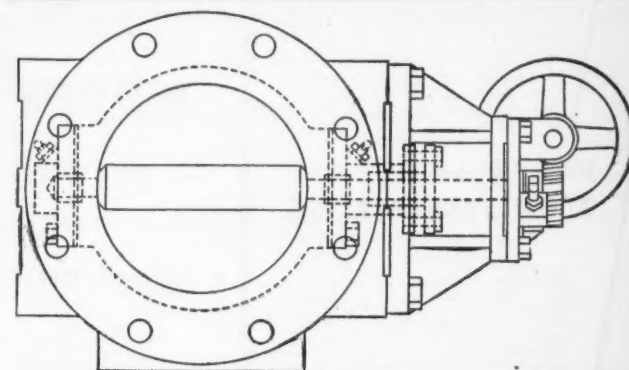
The list of representatives' locations is complete as this issue of R-S ValvEvents goes to press, but it is a steadily growing list. In all these cities you will find the representative's address and phone number in the local phone book under the heading "R-S Products Corporation, Valves."

The list of representatives' locations follows:

Atlanta	Johnson City, Tenn.
Appleton, Wis.	Knoxville
Baltimore	Los Angeles
Birmingham, Ala.	Milwaukee
Bloomington, Ill.	Minneapolis
Boston	Monterrey, (Mexico)
Buffalo	New York
Caracas, (Venezuela)	Panama, (Panama)
Charlotte, N. C.	Philadelphia
Chattanooga	Pittsburgh
Chicago	Portland, Ore.
Cincinnati	Richmond, Va.
Cleveland	St. Louis
Corpus Christi	San Francisco
Denver	Santiago, (Chile)
Des Moines	Seattle
Detroit	Syracuse
Houston	Tulsa
Indianapolis	Youngstown

New 50-pound Valve

Drawing shows details of the new R-S 50-pound Class B Iron Valve. This was designed especially for rugged hydraulic service with the usual R-S safety factor to care for line stresses, water-hammer, and other service abuse. The new valve is in demand for circulating water lines for condenser service. It is available with 25-pound or 125-pound American Standard flanges. Like all R-S Valves, it may be ordered in any material that can be cast or welded, including steel with Series 15 150-pound American Standard flanges. The new valve has the characteristic R-S angular seating disc and may be equipped with the patented R-S Rubber Spool for positive shut-off. (See pic upper left).



Complete R-S Valve Installation Data

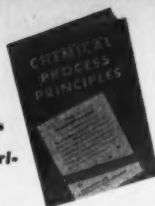
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JM Loo P-12



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1943 452 Pages \$5.00

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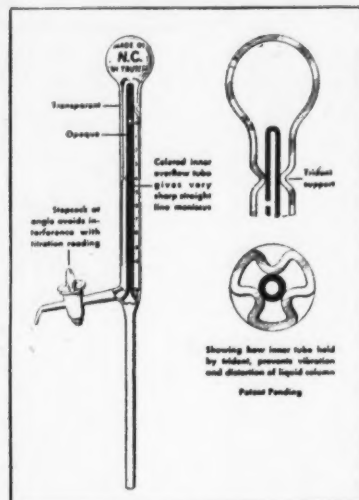
When inquiring specify CP 2918

— see handy form pages 2-3

Production Equipment

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Automatic burette

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Column is fused to burette at bottom and supported at

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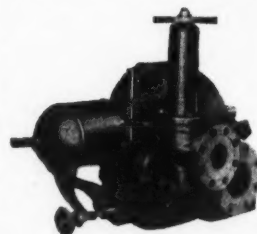
where can you use



mechanical-drive turbines?

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QUICK DELIVERY — Average delivery time for standard (single-stage, shaft-governed) turbines is 15 weeks from receipt of order and complete application information. Apparatus Dept., General Electric Co., Schenectady 5, N. Y.

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EXOLON

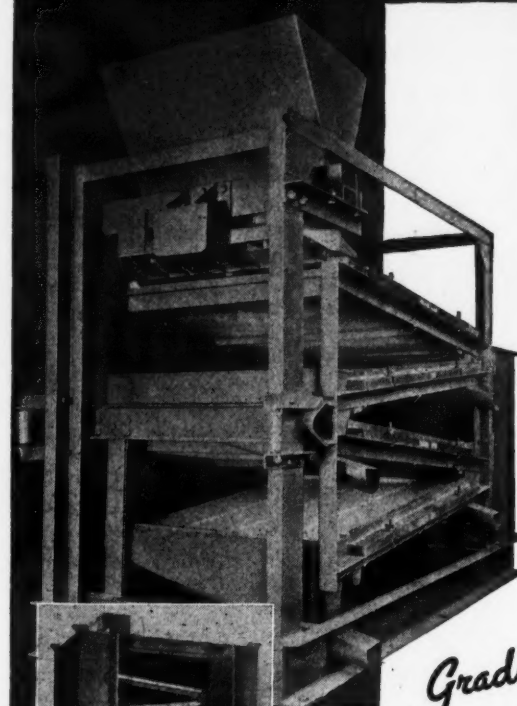
Multi-Form GRADERS

• ACCURACY
OF GRADES

• LONG
SCREEN LIFE

• COMPACT
DESIGN

• LOW
POWER COSTS



*Grades Any Dry
Granular Material*

Abrasive grain, garnet, steel grit and steelshot, nepheline-syenite, feldspar, quartz, silica sand, clays, bauxite, chemicals, pigments, food products, coke, salt, roofing granules.

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947 East Niagara Street, Tonawanda, New York

Manufacturers of SILICON CARBIDE and ALUMINUM OXIDE ABRASIVES

When inquiring specify CP 2920 — see handy form pages 2-3

CHEMICAL PROCESSING PREVIEW

Production Equipment

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Tight sealing of assembly prevents contamination, while an ample supply of reagent may be permanently stored in the large reservoir. Location of stopcock at an angle makes for quick, easy control, also prevents interference with burette reading.

TRUTEST LABORATORIES, Inc., Dept. CP, 20 S. 33rd St., Philadelphia 4, Penna.

When inquiring specify CP 2921 — see handy form pages 2-3

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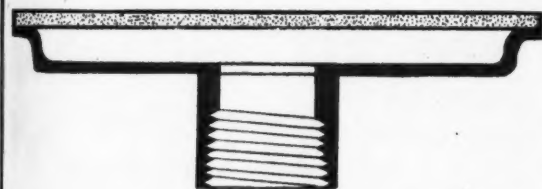
Porous Stainless Steel Spargers Have Low Pressure Drops

*Elements have fine porosities ranging from
5 to 65 microns*

USES — Porous stainless steel elements are used in sprinkling, dispersion and sparging applications.

FEATURES — Flow capacities for all grades of porosities are high, and are accompanied by unusually low pressure drops.

DESCRIPTION — These units consist of a disc of porous stainless steel, which is welded about its periphery to a shallow stainless steel dish. Dish is welded to a



Cross-section of stainless sparger.

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MICRO METALLIC CORPORATION, Dept. CP, 193 Bradford St., Brooklyn 7, N. Y.

When inquiring specify CP 2922 — see handy form pages 2-3

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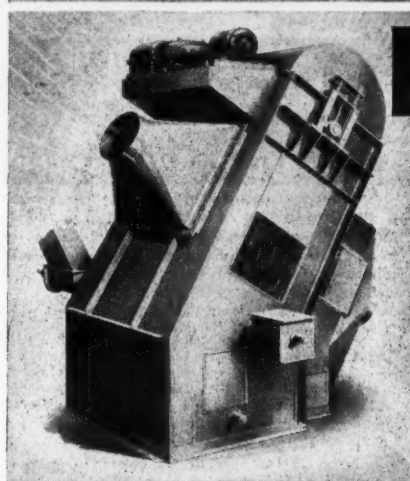
OCTOBER, 1947

**We invite you
to test our claims
in the DRYING of
your own product . . .**

Because the drying process is applied to a wide variation of materials and conditions, Link-Belt invites you to test our claims for superior and more economical drying of *your* material in our special laboratory where test materials are dried or cooled under regular operating conditions.

**See your own
material dried on
a test run at
LINK-BELT'S DRYER
Laboratory . . .**

See your own material dried and see an accurate analysis of the operation in our own laboratory. Link-Belt Research Engineers are at your service. They are thoroughly qualified and equipped to assist you in arriving at the best solution of your drying problems. A test run on your product can be arranged at your convenience . . . simply write or phone your nearest Link-Belt Plant or Office.



**... then duplicate that ideal dryer
performance in your plant on
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10,348

MAY WE SEND YOU LINK-BELT DRYER BOOKS Nos. 1911-A AND 2209?

LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40,
Atlanta, Dallas 1, Minneapolis 5, San
Francisco 24, Los Angeles 33, Seattle 4,
Toronto 8. Offices in Principal Cities.



When inquiring specify CP 2923 . . . see information request blank, pgs. 2-3

STATIC

CAN BE TAMED WITH

Moisture

\$2780 LOSS to a plate glass company when a static spark ignited lacquer thinner.*

\$21,500 DAMAGE in a cotton mill when a static spark set fire to a mixture of naphtha vapor and air as treated cotton duck passed through a dryer.*

2 KILLED, 30 injured, \$140,000 destruction because Hydrogen leaking from an air cylinder produced a static spark that exploded the gas.*

*Insurance company reports.

Static is a trouble maker during the winter heating season when the air is dry. When static potentials build up, the danger of a spark discharge represents a terrific fire and explosion hazard when volatiles, gases or dust are present. Static plays hob in other ways, too—makes many materials difficult to handle, reduces machine speeds, generally retards production.

There is a simple, economical answer to this problem: *add moisture to the air* with Armstrong Steam Humidifiers. An invisible film of moisture conducts static charges harmlessly to the ground. Armstrong Steam Humidifiers give you the humidity you want where you want it. Installed like unit heaters, they are simple, automatic, inexpensive to operate, quiet and dependable.

SEND FOR NEW BULLETIN No. 177—discusses humidification, contains useful charts and tables, explains operation of Armstrong Humidifiers and how to select them. Yours for the asking.

ARMSTRONG MACHINE WORKS

880 Maple Street, Three Rivers, Mich.

ARMSTRONG Steam HUMIDIFIERS

Easy to Install and Maintain Automatic Economical

When inquiring specify CP 2924 — see handy form pages 2-3

Page 58

Production Equipment

Daylight-Blue Glass Lamp Hood Slips Over 25 to 100-Watt Bulbs

Eliminates red and yellow rays; facilitates machining, inspecting, matching colors, etc.



Daylight-blue lamp hood removed and replaced on new bulb.

USES — Daylight-blue, natural-colored glass lamp hood or shield for machining and inspecting shining metal objects. Provides artificial daylight for matching colors of textiles, paints and color printing; also for tobacco stripping, coffee matching, etc.

FEATURES — Filters out harmful red and yellow rays in ordinary electric light bulbs. Removes glare, makes close work possible, and reveals defects. Can be

DESCRIPTION — Available in three sizes for 25 to 100-watt bulbs. Special spring clip facilitates slipping over lamp. Similar hoods supplied in many other colors for warnings, guide lights, bug repelling lights, etc. bug repelling lights, etc.

REYNOLDS ELECTRIC COMPANY, Dept. CP, 2650 W. Congress St., Chicago 12, Ill.

When inquiring specify CP 2925 — see handy form pages 2-3

SARAN*

INVESTIGATE THIS
"all-service
hot chemical"
PLASTIC FILTER MEDIUM

"All-service" because SARAN is highly resistant to most acidic and caustic chemicals . . . much more so than conventional cotton fabrics, even treated fabrics. Test runs on the following chemicals, with "good to excellent results," prove the resistant qualities of SARAN.

10% Acetic Acid	Acetone
10% Hydrochloric Acid	Benzene
10% Nitric Acid	Ethyl Alcohol
30% Sulphuric Acid	Formaldehyde
20% Sodium Hydroxide	Bleach Solution
10% Sodium Chloride	Saturated Bromine Water

"Hot chemical" because SARAN is unaffected chemically or mechanically by continuous exposure to many chemicals up to 160° F. or by the intermittent exposure up to 212° F.

No special installation methods are needed when using SARAN. Order and install it as you would conventional filter media. Before ordering, however, perhaps you would like to try it out for its resistance. In writing for a test sample of SARAN, tell us about the

*TM Dow Chemco products you wish to filter with it.

The FM Line of Filter Media includes:

- Cotton Filter Cloth
- Glass Filter Cloth
- Synthetic Fiber Cloth
- Rubber Covered Screens
- Rubber Filter Media

The Correct Medium for any Problem

Filter Media Corporation

SPECIALISTS IN FILTER CLOTH FOR INDUSTRIAL FILTRATION

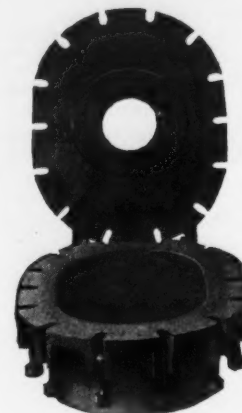
HAMDEN 14, CONNECTICUT

CHICAGO SALT LAKE CITY

When inquiring specify CP 2926 — see handy form pages 2-3

LENAPE SPECIAL MANWAYS

SIMPLIFY DESIGN AND KEEP COSTS LOW



12"x18" Oval Manway and Swing Cover with Light Opening.

When access openings of special type or special material are indicated, you may minimize both design time and construction cost by referring your requirements to Lenape.

We are regularly producing special constructions for chemical, refinery, food, cosmetic, beverage, pharmaceutical, and similar applications, in addition to our standard line.

Our recommendations as to type and material will simplify your design, procurement, and cost problems in the planning and initial estimate stages.

Quotations will be given our immediate attention—Bulletins 4-61 and current price schedule M-47 will be sent upon request.

LENAPE

HYDRAULIC PRESSING
AND FORGING CO.

LENAPE HYDRAULIC PRESSING & FORGING CO.
DEPT. 100 WEST CHESTER, PA.

GEO. HAN PRODUCTS

When inquiring specify CP 2927 — see handy form pages 2-3

DON'T TAKE CHANCES

wear light-weight
**MARTINDALE
DUST MASK!**



While not recommended for toxic dusts or free silica Martindale Protective Masks do offer excellent protection against over 400 dusts that are encountered in hundreds of industries.

LIST PRICES—F. O. B. CLEVELAND, OHIO

Masks _____ \$0.25
No. 1 Refills (std. weight) _____ .02
No. 2 Refills (heavyweight) _____ .02½
Masks packed in individual envelopes. Refills packed in envelopes of 25. The No. 2 Refills contain twice as much filtering cotton as the No. 1.

Send for Bulletin 352 showing quantity discounts on orders of \$5.00 and over.

If payment accompanies order we will pay parcel post or express charges.

Minimum order on open account or C.O.D. _____ \$2.00

SPECIAL OFFER

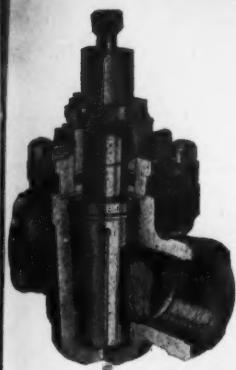
1 Mask and 50 std. weight Refills sent **\$1.25** postpaid on receipt of _____

MARTINDALE ELECTRIC CO.
1358 Hird Ave. Cleveland 7, Ohio

When inquiring specify CP 2928 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

4-WAY VALVE PROTECTION



"Sealdport" lubrication in Nordstrom Valves

1. Seals the valve
2. Prevents sticking
3. Protects the seat
4. Prolongs valve life

Lubrication is necessary to assure perfect valve performance in chemical services. The design and characteristics of Nordstrom valves make operation positive and guard against corrosion and erosion. Ask for descriptive Bulletin.

NORDSTROM

Lubricated PLUG VALVES

NORDSTROM VALVE DIVISION —
Rockwell Mfg. Co.

400 North Lexington Ave., Pittsburgh 8, Pa.
Sales Offices in principal cities.



When inquiring specify CP 2929 — see handy form pages 2-3

Production Equipment

Relief Valve Handles
Up to 10,000 psi

Bar-stock fabricated units have
 $\frac{1}{2}$, $\frac{3}{4}$ and 1" bodies

USES — Relief valve for pressures up to 10,000 psi. Applicable in a wide variety of services.

FEATURES — Simplified construction with minimum number of parts. Combines high capacity with economical maintenance.

DESCRIPTION — Fabricated completely from bar stock (bronze, cold rolled or stainless steel), depending on service expected. In any case, disc and nozzle are stainless steel.

Available with or without test gear in 3 body sizes: $\frac{1}{2}$, $\frac{3}{4}$ and 1". Interchangeable nozzle inserts provide proper capacity at set pressures in 3 ranges. These are: 2000, 5000 and 10,000 psi for each size.

High flow efficiency with a coefficient approximating unity is obtained through high disc lift resulting from high kinetic energy of the discharge developed by venturi action of nozzle.

Top-guided disc piston with 2-point bearing surface is fully free-acting. Bottom and side inlet connections are tapped directly in valve body. High carbon steel loading spring is fully enclosed and protected.

FARRIS ENGINEERING CORPORATION, Dept. CP, 460 Commercial Ave., Palisades Park, N. J.

When inquiring specify CP 2931
— see handy form pages 2-3

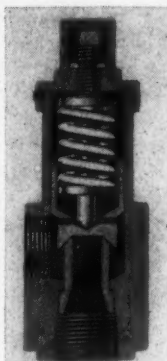
★

Pocket Manual is Guide to 100 Building Maintenance Problems

More than 100 problems in maintenance and construction of all types of industrial buildings are discussed in a 48-page building maintenance guide. Booklet is work-pocket size. Illustrated information is presented concerning maintenance materials for walls, floors, roofs and other structures.

STONHARD COMPANY, Dept. CP, 403 N. Broad St., Philadelphia 8, Penna.

When inquiring specify CP 2932
— see handy form pages 2-3



Bar-stock safety release valve

Need PURE Water?

Specify Dependable

Barnstead Equipment

Specialists in Pure Water Since 1878

Almost 70 years ago Barnstead designed and built the first Automatic Water Still. From that Still to the outstanding new Barnstead "Double-Action" Demineralizer we have had one aim — to produce purer water at lower cost with greater ease. The many Barnstead improvements in design over these years have resulted in a far purer water at a fraction of the original cost. If your requirements for either distilled or demineralized water are from $\frac{1}{2}$ to 1000 gallons per hour, you can satisfy them best with one of the 200 models and sizes in the complete Barnstead line.

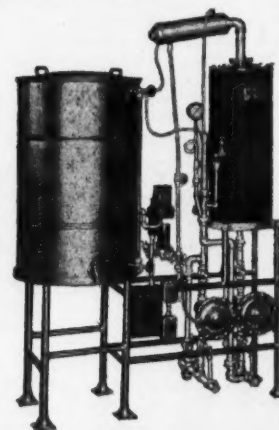


BARNSTEAD DEMINERALIZERS

Barnstead Engineers have developed equipment which utilizes the de-ionizing principle to its fullest practical extent. Conventional 2-bed models as well as the new Barnstead "Double-Action" 4-bed models are available. Both types are available in bench models, portable floor models, and large floor models for permanent installation. In addition, there is the Barnstead Bantam for laboratory use which employs a renewable cartridge and requires no regeneration. Send for Bulletin 112A for complete information and prices.

BARNSTEAD AUTOMATIC WATER STILLS

Noted for their scientifically correct design, Barnstead Stills give trouble-free operation with a minimum of cleaning and attention. Many Barnstead stills sold over a generation ago are still in daily active service producing water far above the U. S. P. specifications. Special types for hard and soft water and for Pyrogen-free distillate for pharmaceutical houses. Models for heating by steam, electricity, gas, kerosene, or gasoline. Ask for new 1947 Catalog "F".



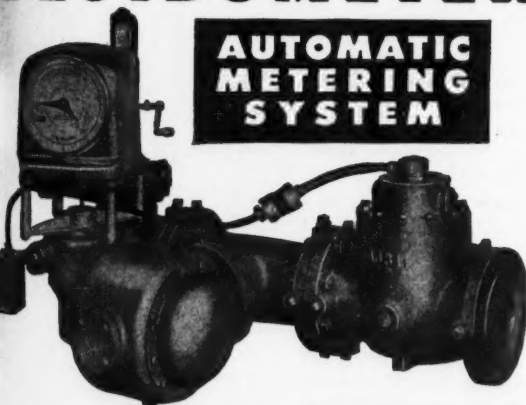
1878
Barnstead
STILL & STERILIZER CO. Inc.

66 Lanesville Terrace, Forest Hills, Boston 31, Mass.

When inquiring specify CP 2933 — see handy form pages 2-3

FLUIDOMETER

AUTOMATIC
METERING
SYSTEM



ACCURATELY BATCHES LIQUIDS
OF HIGH OR LOW VISCOSITY

The Fluidometer System consists of: 1. A control unit. 2. A meter of suitable size, type and metal. 3. A solenoid valve. All three of these parts can be assembled in one closely related grouping, or placed remotely, according to plant convenience. Fluidometer's accuracy and dependability in batching liquids of either high or low viscosity has been proved by years of service under widely varying conditions. Bulletin F-44 sent on request.

HETHERINGTON & BERNER INCORPORATED
711 Kentucky Avenue, Indianapolis 7, Indiana

Builders of Portable and Stationary Asphalt Plants of all Types and Capacities

When inquiring specify CP 2930 — see handy form pages 2-3

OCTOBER, 1947

Now Available in standard types

COOPER Certified^{*}
Stainless Steel
Valves and Fittings

Made of any wanted alloy to resist
Corrosion...Heat...Abrasion...

*In producing "Certified" valves, Cooper registers the analysis of each heat and stamps each casting with its heat number. When desired a certificate of the analysis is issued which applies to all Stainless Steel valve parts which come in contact with the fluid handled.

Check with your local distributor.

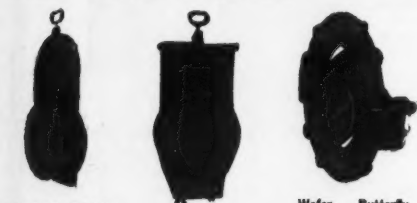
The COOPER ALLOY FOUNDRY CO.
150 BLOY STREET, HILLSIDE, N. J.

Specialists in Corrosion Resisting Stainless Steel
... For a Quarter of a Century ...

When inquiring specify CP 2934 — see handy form pages 2-3

Need Easy Control and Quick Shut-Off?

Rockwell Slide Valves or Butterfly Valves provide the low cost means of controlling fluid flow effectively and efficiently, manually or automatically. Wedge tight shut-off is simple, quick, easy. They are built of any desired metal, light, strong, durable; threaded or flanged. Slide Valves pipe sizes — 1" to 20"; Butterfly Valves — 1" to 60" and larger. Write for Catalog 406R.

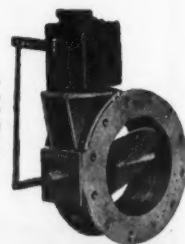


Standard Slide Valve, pull handle control; also with lever or wheel control.

"Kwiklean" Slide Valve for dirty gases; quick opening for easy cleaning; pull handle, lever or wheel control.

Wafer Butterfly Valve with hand wheel control; also with lever, chain wheel or automatic control.

Standard Butterfly Valve with electric motor control; made with any manual or automatic control.



ROCKWELL VALVES

Slide or Butterfly Types in All Metals

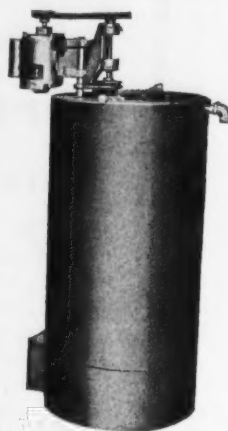
W. S. ROCKWELL COMPANY—220 Eliot St., Fairfield, Conn.

When inquiring specify CP 2935 — see handy form pages 2-3

Production Equipment

Calibrating Tank Provides Constant Temperature

Employs water, oil or salt as a heating medium



Calibrating tank

USES — Instrument departments of chemical processing plants will find this calibrating tank useful in calibrating mercury and gas filled thermometers and controllers.

FEATURES — Motor-driven auger type agitator lifts heating medium from the bottom to the top of the tank, where it is spilled out. This continuous displacement of the bath assures thorough mixing and constant temperature.

DESCRIPTION — Tank is cylindrical in shape, of heavy steel refractory insulated, with a steel or copper inner tank. Between these are located the folded-and-formed ribbon type heating elements, which have a top safety temperature of 2000° F.

TRENT, INC., Dept. CP, 235 Leverington Ave., Philadelphia 27, Pa.

When inquiring specify CP 2936 — see handy form pages 2-3

Non-Sparking Shovels Are Aluminum

Resist most liquids

USES — Aluminum shovels for use in various processing operations.

FEATURES — Non-sparking, durable and lightweight, with remarkable resistance to most liquids.

DESCRIPTION — Available with either long or short handle. Blade dimensions are 12-3/4" wide, 16-1/2" long and 2-3/4" deep.

W. E. BROSIUS COMPANY, Dept. CP, 711 House Bldg., Pittsburgh 22, Penna.

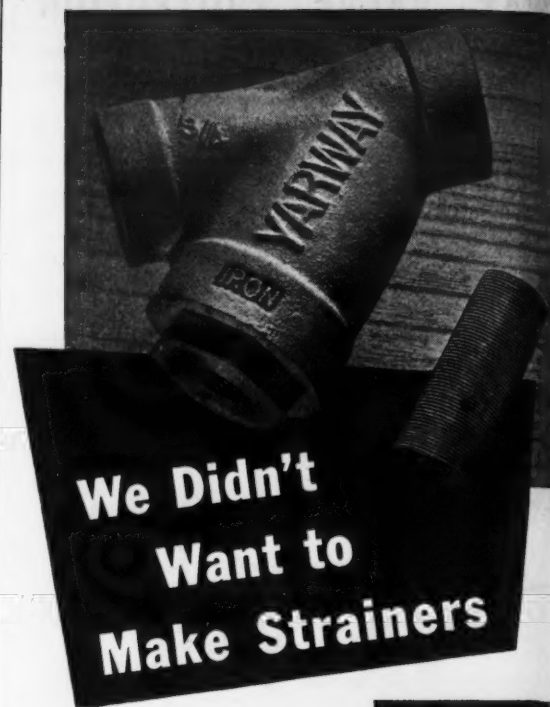
When inquiring specify CP 2937 — see handy form pages 2-3

Liquid and Gas Filters are Single or Multiple

A 4-page bulletin describes Fulflo filters and Honecomb filter tubes for water, petroleum products, beverages, food products and general industrial uses such as varnishes, brake fluids, wax, soaps and cosmetics.

COMMERCIAL FILTERS CORPORATION, Dept. CP, A & West 3rd Sts., Boston 27, Mass.

When inquiring specify CP 2938 — see handy form pages 2-3



We Didn't Want to Make Strainers

BUT we needed them for use with Yarway Steam Equipment and couldn't find any to suit us.

So we designed the **YARWAY Strainer**.

Apparently a lot of other people were having "Strainer trouble" because the Yarway Strainers purchased in a few years now number *many thousands*.

Why don't you look into this better Strainer for your money? Buy one from your supply house (nearly 150 Mill Supply Houses now have them).

Cadmium Plated for protection against corrosion and for better appearance.

Examine its *high grade Monel woven wire screen* that stops dirt — lets condensate or other fluids flow freely.

Notice the removable blow-off bushing. Screen and bushing come out together — go back together, *automatically aligning*.

Six standard sizes from 1/2" to 2" for pressures to 600 lb.

See your Mill Supply House or write for Bulletin S-201

YARNALL-WARING COMPANY
125 Mermaid Ave. PHILADELPHIA 18, PA.

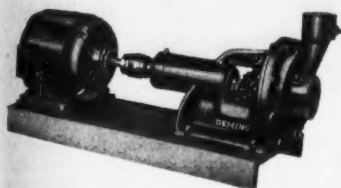
YARWAY STRAINERS

When inquiring specify CP 2939 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

Side-Suction Centrifugal Pumps Handle Water, Viscous Liquids

Single and two ball-bearing types made for belt
or direct-connected motor-drive



USES — Line of standardized, side-suction centrifugal pumps for meeting diversified pumping requirements. Applications include circulating and booster service, also the pumping of liquids heavier than water, such as many kinds of viscous liquids.

DESCRIPTION — Five sizes include $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$ and 2" suction in capacities from 2 to 200 gallons per min.

Made in three types: single ball bearing with open-type impeller, two ball bearing with open-type impeller, and two ball bearing with semi-enclosed impeller. Each of these is made for belt drive and for direct connection to electric motor. Bulletin 3900-B.

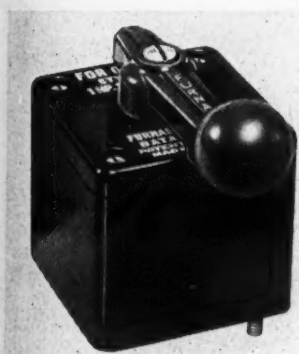
THE DEMING COMPANY, Dept. CP, Salem, O.

When inquiring specify CP 2940 — see handy form pages 2-3

★

Motor Controller Has Four Switching Arrangements

Rated up to 1 H.P. 110-550 volts A.C. and $\frac{1}{4}$ H.P.
115-230 volts D.C.



Series "A" 1 H.P. controller parallel and 3 pole OFF-ON. Has plastic case, handle and contact rotor.

Several mounting arrangements are available such as an angle bracket, flange mounting and plates for attachment of several styles of standard outlet boxes.

Rated 1 H.P. single and 3 phase 110 to 550 Volt A.C., $\frac{1}{4}$ H.P. 115 to 230 Volt D.C. Non-inductive loads: 10 amperes 110 Volt A.C., 5 amperes 220 Volt D.C. Described in Bulletin 4702.

FURNAS ELECTRIC COMPANY, Dept. CP, 405 McKee St., Batavia, Ill.

When inquiring specify CP 2941 — see handy form pages 2-3

OCTOBER, 1947

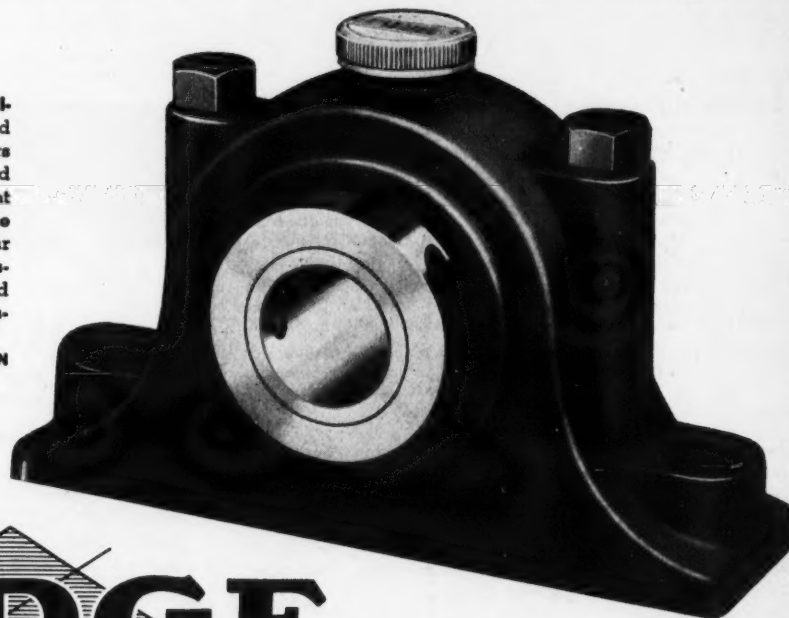
DODGE TIMKEN

These Two Names

ON ANTI-FRICTION BEARINGS ARE YOUR
ASSURANCE OF *QUALITY, DEPENDABILITY*
AND *PERFORMANCE* WHICH ENABLE YOU
TO CUT COSTS AND INCREASE PRODUCTION

Dodge-Timken Double Interlock Pillow Block. Dodge mounts, seals and houses the bearing assembly, delivers the pillow block fully assembled ready to lock on the shaft and run at full speed and full load. This is one of the famous Dodge 30,000 hour line, covering a wide range of industrial bearing requirements, and promptly available from Dodge distributors' stocks.

DODGE MANUFACTURING CORPORATION
Mishawaka, Indiana



DODGE

of Mishawaka, Ind.

CALL THE TRANSMISSIONEER

your local Dodge distributor, for news of latest developments in power transmission equipment. Look for his name in your classified phone book under "Power Transmission Equipment."



Copyright, 1947, Dodge Mfg. Corp.

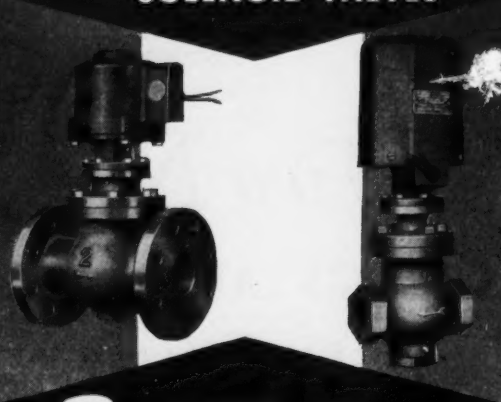
FOR YOUR NAME PLATE REQUIREMENTS, WRITE OUR SUBSIDIARY,
ETCHING COMPANY OF AMERICA, 1520 MONTANA STREET, CHICAGO 14, ILLINOIS

When inquiring specify CP2942 . . . see information request blank, pgs. 2-3

SOLENOID

Control

WITH SOLENOID VALVES



Protect

WITH SOLENOID VALVES

The solenoid operated valve is a versatile device . . . a device that has many uses in the process industry and is one of the most versatile automatic controls obtainable.

- 1 . . . you can install solenoid valves whose sole job is to close or open a liquid or gas line in an emergency. They do not interfere with operations but should something go wrong, they snap shut or open instantly to cut off or permit a flow.
- 2 . . . you can install solenoid valves which open or close cyclically or functionally, being controlled by timers, floats, pressure regulators or other control apparatus.
- 3 . . . you can install solenoid valves which will periodically change the direction of flow as required for operation of diaphragm pumps or double acting cylinders.

Study all the liquid and gas control problems in your plant and if there is any need for automatic control of the flow, get in touch with us. It may well be that the solenoid operated valve will be the best answer. We have designed and made these valves for over 40 years and will be in position to make intelligent recommendations. For preliminary study, send for Catalog 200-R.

When in need of Automatic Transfer Switches, Remote Control Switches, Contactors, Relays, and Specialized Electromagnetic Controls, come to us.



Automatic Switch Co.

47 East 11th Street • New York 3, N. Y.

When inquiring specify CP 2943 — see handy form pages 2-3

Production Equipment

Neoprene Gloves Grip and Protect At Same Time

Corrugated patches over palm, thumb and fingers are cured with glove itself



Neoprene gloves

USES — Neoprene gloves for key spots requiring hand protection plus positive, non-slip gripping action.

FEATURES — Rugged construction and positive grip assure safety from slipping or stress.

DESCRIPTION — Corrugated Dupont neoprene patches on palm, thumb and fingers guard against slippage and provide double thickness at

points of greatest strain. Patches extend over ends.

Made of the same material as the glove, patches are uncured when first attached, and are cured along with glove itself to insure permanent adhesion.

THE SURETY RUBBER COMPANY, Dept. CP, Carrollton, O.
When inquiring specify CP 2944 — see handy form pages 2-3



"KEMITE" DUCT has extreme flexibility; a pure natural rubber tube that's highly resistant to abrasive wear and permeation of liquids or gases; a patented wire-reinforced carcass that will not collapse or kink, even on sharp ends. Sizes, 3/4" to 4".

"GOODITE" PIPE has the same characteristics as "Kemite", but is made in larger sizes — up to 12". Available in two constructions, for either suction or discharge.

Both "Kemite" and "Goodite" can be furnished complete with "Flang-Lok" ends and "Flang-Lok" Flanges — easy to install, and providing a leakproof, rubber-to-rubber seal.

Contact Our Nearest Branch for Details and Prices.

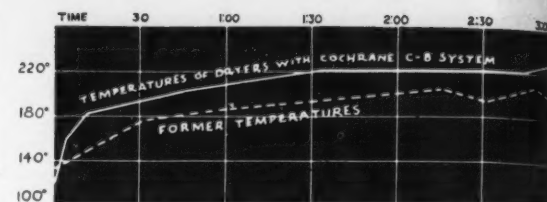


GOODALL RUBBER CO., INC.

THE GOODALL-WHITEHEAD COMPANIES

Philadelphia • Trenton • New York • Boston • Pittsburgh • Chicago • St. Paul • Los Angeles
San Francisco • Seattle • Salt Lake City • Houston • Factory: Trenton, N. J. • Est. 1870

When inquiring specify CP 2945 — see handy form pages 2-3



FASTER and MORE UNIFORM HEAT Increased Average Temperature of Dryers 18°F., Increased Production 17% and Saved 18% in Fuel

This experience of a dye works in Chicago is typical of results being obtained everywhere by firms who are discarding old-fashioned methods of draining condensate and installing the Cochrane C-B System of High Pressure Condensate Return. The C-B System keeps equipment hotter by positive drainage of condensate and returning it to the boiler at high temperature and high pressure in a closed circuit with complete elimination of entrained air.

Write for Publication 3250

COCHRANE CORP.

3147 N. 17th St., Phila. 32, Pa.

COCHRANE CONDENSATE C-B BOOSTER SYSTEM

OF HIGH PRESSURE, HIGH TEMPERATURE CONDENSATE RETURN

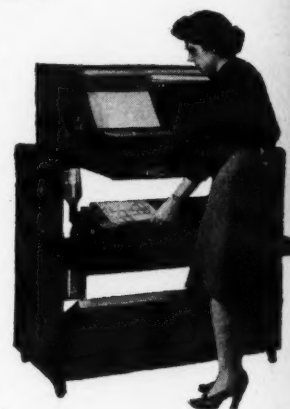
When inquiring specify CP 2946 — see handy form pages 2-3

BW & Copyflex Printer-

Duplicates Anything Drawn — Typed — Printed — Illustrated

This Bruning Model 2 BW and Copyflex Continuous Printer, shown on stand with Model 153M BW developing machine, provides a convenient means for making Bruning BW direct line process prints from any translucent or transparent original material. The machine can be set up anywhere in your drafting room or office — requires no plumbing or provision for exhaust fumes. At the flick of a switch, the Model 2 Printer also exposes

Copyflex photographic prints of anything typed, printed, illustrated or drawn. Opaque original material with copy on both sides can be reproduced from one or both sides. Copyflex prints are developed with three trays and a simple drier (readily available). For full information, write Charles Bruning Company, Inc., 4706-16 Montrose Avenue, Chicago 41, Illinois.



BRUNING Since 1897

When inquiring specify CP 2947 — see handy form pages 2-3

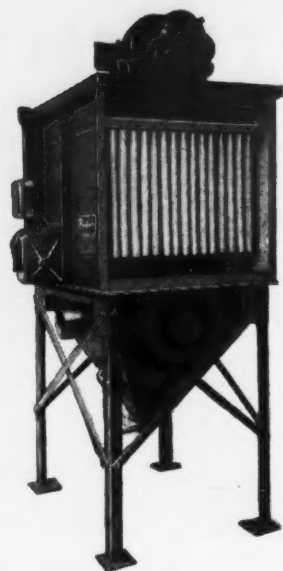
CHEMICAL PROCESSING Preview

**CONTROL
DUST!**

**Put This Pangborn
Unit Type Dust
Collector Close to
the Dust Source**

Where bad dust conditions are concentrated, install the Pangborn "CL"—a small-sized factory-assembled unit. Unit type collectors located directly at the "dust pockets" give you flexibility—may offer greater savings than a large "central" collector.

For Bulletin 912, address Pangborn, world's largest manufacturer of dust control and blast cleaning equipment at 285 Pangborn Boulevard, Hagerstown, Maryland.

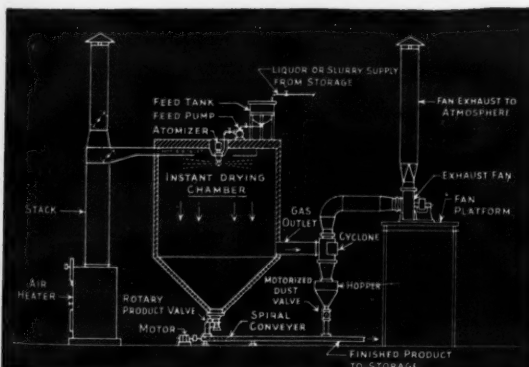


Pangborn Unit Type "CL" — all-metal except filter cloth, non-sag screen frames, individually removable screens, motor-driven screen shaker. 180-820 sq. ft. cloth area.

Pangborn
DUST CONTROL
PANGBORN CORPORATION HAGERSTOWN, MARYLAND

**TURN'S DUST LOSSES
INTO PROFITS**

When inquiring specify CP 2948 — see handy form pages 2-3



LOW COST DRYING

with The "INSTANT DRYING" System

- Less power and a smaller connected load required.
- Engineered to be trouble free.
- Large capacity, rugged construction.
- Requires a minimum of labor and attention (one man can supervise the operation of a battery of several Instant Drying units per shift).

Many of your industrial colleagues have proved the savings that can be secured through the use of THE INSTANT DRYING SYSTEM. Write to us on your drying problem. We shall answer your questions and send you detailed literature on THE INSTANT DRYING SYSTEM.

INSTANT DRYING CORPORATION

101 Park Avenue, New York 17, N.Y.

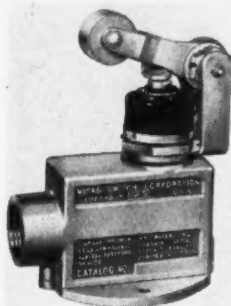
Testing and Research Laboratories at Poughkeepsie, N. Y.
Engineering by CLARK, MacMULLEN & RILEY, INC., New York

When inquiring specify CP 2949 — see handy form pages 2-3

Production Equipment

Sealed Switch Resists Action of Dust, Dirt, and Abrasives

Accuracy maintained through millions of operations



Sealed switch unit

USES — Die cast switch is designed particularly for cam and slide actuation on industrial applications, where the switch is exposed to dust, dirt, abrasives, and the occasional splash of oil and water.

FEATURES — The synthetic rubber boot covering the operating plunger and the gasket assembled between the bottom plate and the housing case provides a completely sealed switch unit, when the conduit hub is fitted with rigid conduit.

DESCRIPTION — Roller arm actuator is adjustable both vertically and horizontally. Switch is supplied with either bottom or side mounting facility.

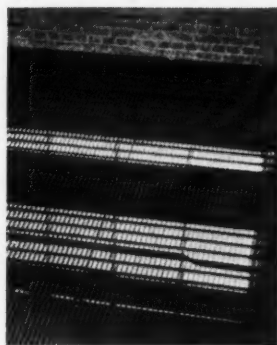
Operating force — 6 to 16 ounces, release force — 4 ounces, minimum, pretravel — 11/64", maximum, overtravel — 7/32", minimum, movement differential — 0.006", maximum, net weight — 0.64 pounds.

MICRO SWITCH, Dept. CP, Freeport, Ill.

When inquiring specify CP 2950 — see handy form pages 2-3

For strength, light and ventilation

specify Hendrick Mitco
OPEN STEEL FLOORING



90% open area assures ample light and ventilation. Square-edge, uniformly spaced metal bars provide non-slipping, level walking surface. Pressure-formed integral construction obviates weaknesses of bolts, rivets and angle irons. Heavy loads are supported without lateral deflection of flooring, because every Mitco panel is a strong, integral unit. Consult your architect or engineer.



Perforated Metals
Perforated Metal Screens
Architectural Grilles
Mitco Open Steel Flooring,
"Shur-Site" Treads and
Armorgrids

HENDRICK

Manufacturing Company

32 DUNDAFF STREET, CARBONDALE, PA.
Sales Offices in Principal Cities

When inquiring specify CP 2951 — see handy form pages 2-3

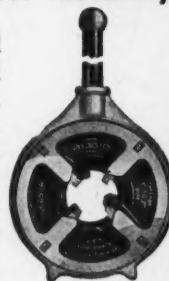
PERFECT PIPE THREADS *in a hurry*



Semi-automatic

RIGID No. 65R is ready
to thread 1" to 2" pipe almost instantly

● When you have a self-contained No. 65R, there's no fooling around to thread 1", 1 1/4", 1 1/2" or 2" pipe. Its one set of high-speed steel dies adjust to pipe size easily in 10 seconds. Mistake-proof workholder sets instantly — one screw to tighten, no bushings. Perfect threads quickly, with least effort. Every tool factory tested. More for your money — ask your Supply House for the No. 65R.



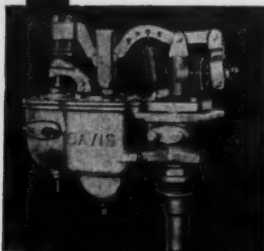
It stands up handily on the floor.

RIGID

WORK-SAVER PIPE TOOLS
THE RIDGE TOOL COMPANY • ELYRIA, OHIO

When inquiring specify CP 2951A — see handy form pages 2-3

DAVIS SOLENOID VALVES for—



**Steam, Air, Water,
Oil Applications,
Extreme Accuracy
Sizes 1/2" to 12"
Pressures to
1500 Lbs.**

Davis No. 97TH two-step Solenoid Valve for extremely accurate proportioning or throttling of liquid flow.

Davis Solenoid Valves are operated by any device that will make or break an electrical circuit, and are furnished either normally open or normally closed—explosion proof if desired.

Davis valves adapted to solenoid operation include: single seated valves for high or low pressure, balanced valves, butterfly valves, and 3 or 4-way pilot valves. Reciprocating or rotary steam type. For extreme accuracy, the Davis Two-Step Solenoid Valve is available.

Write today for details



DAVIS REGULATOR COMPANY

2562 SOUTH WASHTENAW AVE., CHICAGO 8, ILL.

When inquiring specify CP 2952 — see handy form pages 2-3

Production Equipment

Twin Strainers Permit Continuous Flow

Made in bronze, steel, semi-steel, or special alloys



Twin sediment strainer

lieving yoke which acts to seat the plug tightly for sealing, or to loosen it for turning, as required.

When strainer is to be cleaned, flow can be diverted from one basket to the other without interrupting passage through the strainer.

Dual air relief valves are regularly furnished, available with flanged or screwed connections, and suitable for

USES — Designed to meet requirements where continuous flow is imperative.

FEATURES — Action of plug design is positively non-freezing, operates freely and easily at all times.

DESCRIPTION — Unit operates by means of a single plug type valve whose outlets direct flow from the inlet to either basket, or both simultaneously. The seating of the plug into the body is regulated by the re-

Stainless Steel SAN-I-TANKS

*will simplify your storage and
processing operations*

Save time, money, increase efficiency — it's easy with San-I-Tanks. The ideal tank for ANY liquid that must be stored or processed. A San-I-Tank is easy to clean, completely sanitary, safe in operation and is engineered for years of trouble free service.

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Do you have a tank problem that needs solving? Why not put it up to our engineers. In many cases we can show you how the proper tank installation will save you time and money. There is no obligation for this service, and we can follow through and produce the tanks in our own plant. This means additional savings for you.

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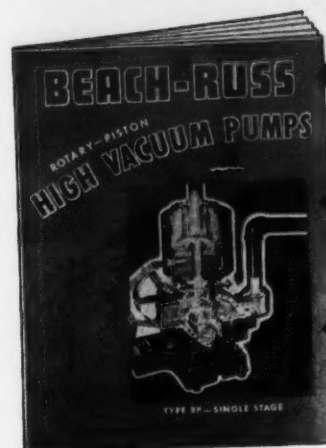
3236 Union Pacific Ave., Los Angeles 23, Calif.

METAL-GLASS PRODUCTS CO.
BELDING Dept. CP MICHIGAN

- BUILT OF 18-8 STAINLESS STEEL
- ALL-WELDED CONSTRUCTION
- RUST-PROOF and ACID RESISTING
- MANY STOCK SIZES

When inquiring specify CP 2953 . . . see information request blank, pgs. 2-3

THE SECRET OF



**Sustained
Higher
Vacuum**

**Produced Faster
More Efficiently**

**At Slowest
Pumping Speed**

The secret of better vacuum processing lies in superior vacuum pump performance. That's what a Beach-Russ Pump can do for you — give higher sustained vacuum more efficiently, dependably, at lower cost.

This new catalog tells you in plain down-to-earth language why Beach-Russ Rotary Piston High Vacuum Pumps are better in your vacuum process line. Get a copy.

BEACH-RUSS COMPANY

46 CHURCH STREET • NEW YORK 7, N. Y.

When inquiring specify CP 2954 — see handy form pages 2-3

Dry, Safe Hands

**with Liquid-Proof
Neoprene-Coated**

Stanzails

Tough canvas gloves, heavily coated with Pioneer-processed DuPont neoprene — oil and acid resisting. Keep hands safe in dangerous materials, prevent costly injuries — extra-long wear. Red color warns fingers from moving wheels. No peeling, no cracking; curved fingers for comfort. Standard size, knit wrist (R26) or gauntlet, (R27). Ask your supplier — or write for facts.

All-neoprene Stanzails

Unique non-slip finish gives workers assurance and speed.



Synthetic Rubber Division
THE PIONEER RUBBER COMPANY
239 Tiffin Rd., Willard, Ohio, U.S.A.
Los Angeles

OVER 25 YEARS OF QUALITY GLOVE MAKING

When inquiring specify CP 2955 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

Production Equipment

working pressures from 125 to 300 lbs. A basket chamber cover yoke assembly, or C-washer type bolted cover assembly is furnished as required. Both are quick releasing.

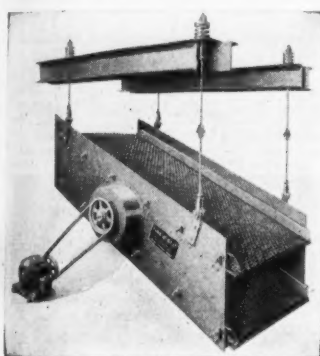
Made in bronze, steel, semi-steel, or special alloys to specifications. Sizes 1" to 6" regularly; larger sizes to order.

J. A. ZURN MFG. CO., Dept. CP, Erie, Pa.

When inquiring specify CP 2956 — see handy form pages 2-3

Vibrating Screen Will Size, Scalp, Dewater or Rinse

May be floor-mounted or suspended; handles sugar, cement, sulphur, slag, etc.



Vibrating screen, suspended

on floor. High capacity and smooth operation plus low maintenance.

DESCRIPTION — Concentric-action screen. Inclined floor-mounted or spring-and-cable suspended. Balanced, 2-bearing vibrator mechanism imparts concentric or circular vibrating motion to all points of screening surfaces.

Made with double or triple decks, and in sizes ranging from 3 x 8' to 6 v 14'. Single deck screens are provided by removing lower deck of the standard double-deck screen. Unobstructed screening surface. Controlled screen cloth tension. Minimum starting torque. Book No. 2154 contains full details.

LINK-BELT COMPANY, Dept. CP, 307 N. Michigan Ave., Chicago 1, Ill.

When inquiring specify CP 2957 — see handy form pages 2-3

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OCTOBER, 1947

ANNOUNCING

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ION EXCHANGE

Demineralizer

Chemical Equivalent of Distilled Water or Better...at a Fraction of the Cost!

Manufacturers of textiles, paper, pharmaceuticals, mirrors, etc., using distilled or raw water in processing can effect important savings, improve quality and increase production by the use of these revolutionary new demineralizing units. Model 60, shown above, strips water of dissolved solids by filtration through beds of ion exchange resins. It stands 5 feet high with columns 6" in diameter and has capacity of 60 gals. per hour. Equiv. of distilled water or better — costs a few cents per 1M gallons. Requires, no heat, steam or power, no special skill or training. Self-contained and entirely automatic. Comes complete, ready to connect to raw water source. Pays for itself in a few months. Units any capacity — from Laboratory size to thousands of GPH.

Write today outlining your requirements. Our engineers will be glad to submit specific recommendations without obligation.

PENFIELD Manufacturing Co., Inc.

12 HIGH SCHOOL AVENUE, MERIDEN, CONN.



When inquiring specify CP 2958 . . . see information request blank, pgs. 2-3



ACCURATE CO₂ Analysis in 40 Seconds!

Other outstanding features of the FYRITE CO₂ Indicator are its durable, fool-proof construction and unmatched convenience of operation. It requires no setting-up, has no valves or leveling bottle to manipulate. The FYRITE measures CO₂ directly by the fundamental method of chemical absorption. Consequently, the reading is independent of voltage, humidity, temperature, or atmospheric pressure conditions.

Comes complete with chemical charge good for 400 readings. Replacing chemical merely requires removing four screws that hold top assembly in place.

Write for Bulletin 703

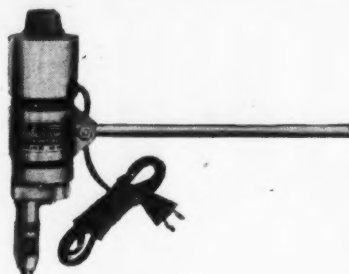
BACHARACH Industrial Instrument Company
7000 Bennett Street - Pittsburgh 8, Pa.

When inquiring specify CP 2959 — see handy form pages 2-3

Production Equipment

Small, Light Lab Stirrer Has High Torque, Variable Speed

Universal, continuous-duty motor has range of 450 to 1200 rpm without load



Variable speed, high torque lab stirrer

USES — High torque, variable speed laboratory stirrer for use in all types of laboratories requiring a small, lightweight unit.

FEATURES — Develops unusually high torque. Adjusts on any support to meet individual requirements.

DESCRIPTION — 15 to 1 gear reduction. Resistance-controlled universal, continuous-duty motor. Speed range, without load, 450 to 1200 rpm.

Built-in rheostat controlled by plastic knob. Cooled by built-in fan and duct system. Off-switch is built into housing. Overall length, 9½" without paddle. Weight, 3½ lbs. 115 volt, 60 cycle AC or 115 volt DC.

EBERBACH & SON COMPANY, Dept. CP, Ann Arbor, Mich.

When inquiring specify CP 2960 — see handy form pages 2-3

Edward RELIEF VALVES

for economical PROTECTION against sudden pressure increases

... for pump lines, drums, heat exchangers and unfired pressure vessels generally ... for the power, chemical process, petroleum, and marine and general industrial fields ... for water, steam, oil or vapor services.

Forged carbon steel body, stainless steel seat and ball, carbon or stainless steel spring. All valves factory set for the required relieving pressure.

SIZE	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Center to End	1 1/4"	1 3/8"	2 1/4"	2 3/4"	2 3/4"	3 1/4"	3 3/4"	3 3/4"
Center to Top	6 1/4"	7 3/4"	9 3/4"	10 3/4"	12 3/4"	14 1/4"	16 1/4"	16 1/4"
Weight-lbs.	2 1/4"	4 3/4"	6 1/4"	13	19 1/4"	31	40	

Send for Edward Catalog No. 103

Edward Valves, Inc.
SUBSIDIARY OF ROCKWELL MANUFACTURING COMPANY
EAST CHICAGO, INDIANA

When inquiring specify CP 2962 — see handy form pages 2-3

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Something Worthwhile for Everyone in Every Phase of Industrial Chemistry

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NEW HAYS VERIFLOW

TOTALIZING-INDICATING METER

Featuring REMOTE INDICATION OF RATE OF FLOW

For practically all liquids—tar, molasses, crude oil, grease, paint, varnish, syrups, etc., etc.—for measuring, indicating, totalizing flow of water and chemicals in continuous manufacturing processes and numerous other uses. Its remote indicating feature is new—get the complete story.

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The HAYS CORPORATION
SINCE 1901 COMBUSTION INSTRUMENTS AND CONTROL MICHIGAN CITY, INDIANA, U.S.A.

When inquiring specify CP 2963 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

Production Equipment

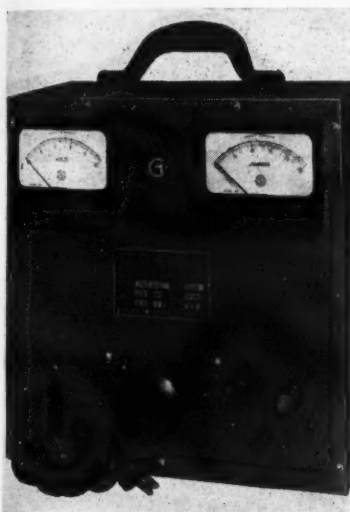
Portable Rectifier Is DC Power Source

45-lb. bench unit has 150 watt capacity, 0 to 6 volt output

USES — A complete DC power supply source for laboratory and industrial applications, battery charging, etc., is available in a new portable bench rectifier unit.

FEATURES — Exceptionally light and portable. Noiseless operation. No moving parts. Has long-lived rectifier element, input and output protection.

DESCRIPTION — 150-watt capacity. Output is adjustable from 0 to 6 volts, with continuous capacity of 25 amperes. Cabinet dimensions, 14 x 14 x 9". Weight, approximately 45 lbs.



Portable bench rectifier unit

Heavy duty rubber cord and plug are incorporated to match any standard AC outlet. Has on-off magnet circuit-breaker type switch. DC circuit has panel-mounted fuse.

For lamp replacement, unit has pilot lamp with removable jewel. Voltage control transformer is continuous range, from zero to maximum.

W. GREEN ELECTRIC COMPANY, Inc., Dept. CP, 130 Cedar St., New York, N. Y.

When inquiring specify CP 2964
— see handy form pages 2-3

For more information on product at right, specify CP 2965
... see information request blank between pages 2-3.

PYREX brand Glass Pipe LOWEST IN COST...

"We selected PYREX glass pipe for our plant because . . .

1. First cost and maintenance cost are most favorable.
2. Our products are assured absolute protection against contamination.
3. Visibility affords better control over operations."

G. L. Locke, Vice President
NORWALK CHEMICAL CO., Norwalk, Ohio

Chemical engineers select PYREX brand glass pipe for different reasons. The desire to eliminate product contamination or equipment corrosion is basic. But operating costs and product quality are extremely important factors also. On all four points, PYREX pipe is the most practical answer, and a good case in point is the Norwalk Chemical Company.

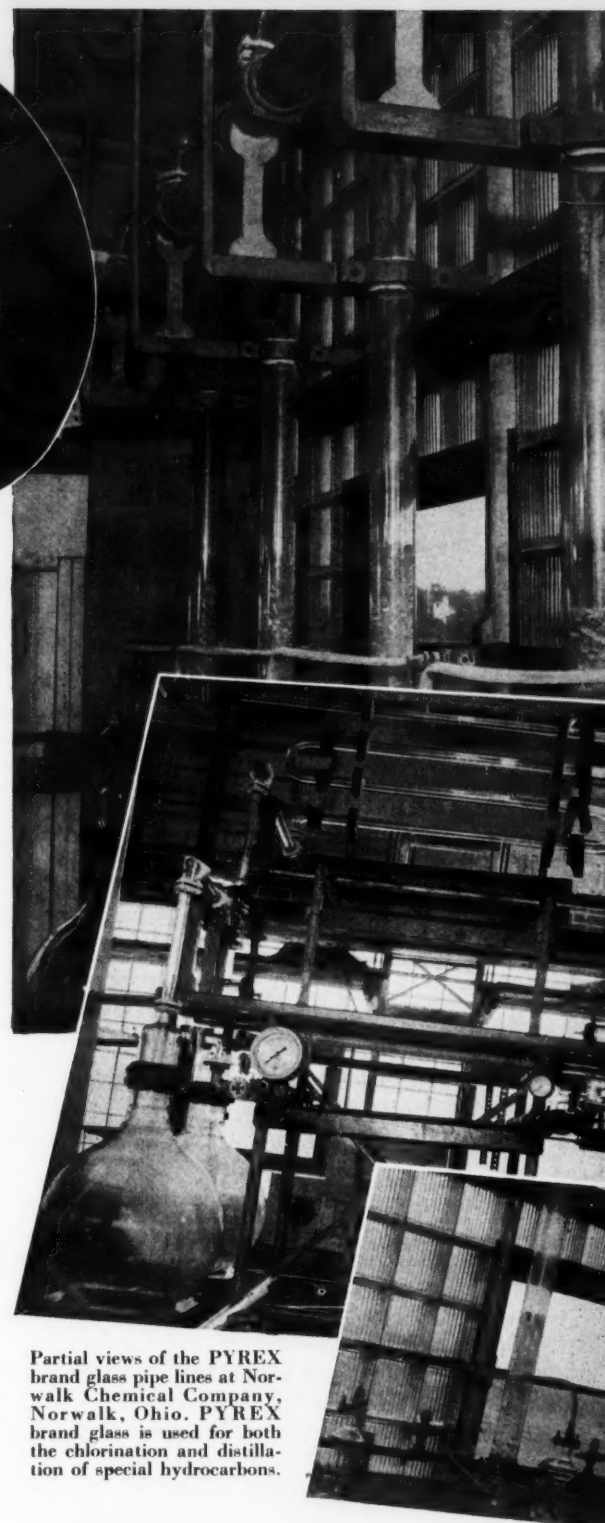
The reasons for which PYREX pipe is used are stated above. The processes are extremely corrosive, involving both the chlorination and distillation of special hydrocarbons. Absolute purity is essential to the finished product, and on any basis of comparison, PYREX pipe has *proved* best. In fact, PYREX pipe has been used by Norwalk for over 15 years with uniformly satisfactory results.

TRY a Test Installation of PYREX Pipe!

The best way to convince yourself that PYREX pipe is entirely practical for your liquid transfer problem is to try a test installation—in your toughest processing spot. PYREX pipe is available in inside diameters from 1" to 4", and in standard lengths up to 10 ft. Fittings are available in the same sizes to enable you to make a complete hookup regardless of the different materials of which your present pipe lines are made. Mail the coupon below.



PYREX GLASS PIPE
BRAND



Partial views of the PYREX brand glass pipe lines at Norwalk Chemical Company, Norwalk, Ohio. PYREX brand glass is used for both the chlorination and distillation of special hydrocarbons.

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CORNING, NEW YORK
SALES OFFICES: NEW YORK • CHICAGO • SAN FRANCISCO

CORNING GLASS WORKS, DEPT. CP-10, CORNING, N. Y.

Please send me Bulletin 1A-3 describing PYREX brand pipe.

NAME.....TITLE.....

COMPANY.....

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MIXING AND BLENDING BY SPROUT-WALDRON

At Sprout-Waldron each mixing installation is carefully considered as a specific problem . . . closely related to the product, the rate of production, and the physical conditions encountered. Mixers of stainless steel, non-ferrous alloys, plexiglas, and wood are engineered to meet your most rigid requirements.

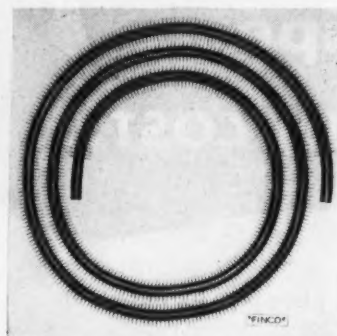
SPROUT-WALDRON & COMPANY
Manufacturing Engineers
MUNCY PENNSYLVANIA

When inquiring specify CP 2966 — see handy form pages 2-3

Production Equipment

Coiled Finned Tubing Cuts Costs in Heating-Cooling Units

Serrated fin type available in wide range of sizes, diameters



Coiled finned tubing

A new technique is utilized in bending. Flat or pancake coils are now formed out of tubing with serrated fins as high as $\frac{3}{8}$ inch without crushing or distortion.

DESCRIPTION — These Finco flat coils are available in either ferrous or non-ferrous materials and in a wide range of tube sizes, fin heights, fin spacings and coil diameters.

FINTUBE COIL CORPORATION, Dept. CP, 19 West Main St., Alhambra, Calif.

When inquiring specify CP 2967 — see handy form pages 2-3

USES — For use in the manufacture of condensers, evaporators, unit heaters and coolers; for use as coils in refrigerated vending machines and many other types of extended surface equipment.

FEATURES — In making this coiled finned tubing, a

SIFTING SPEED AMAZES USERS

CENTRIFUGAL METHOD PRODUCES CLEAN SEPARATION 2 TO 5 TIMES FASTER THAN BY ANY OTHER METHOD.

Typical of the reports of hundreds of users of Abbé-Blutergess Turbine Sifters are these: "We sift talc, zinc stearate, rice, starch, magnesium carbonate, getting 99.8% fines. It works 3 to 5 times as fast as gyrating sifter; labor cut in half."

On pharmaceuticals: "We save $\frac{1}{2}$ to $\frac{2}{3}$ ¢ per lb. and sift 3 to 4 times faster than with other mechanical sifters we replaced."

On molding compound: "Your machine is much smaller, easier to handle, clean and change screens than gyratory machine of equal capacity."

There are many more reports proving the remarkable savings in time, power, space, attention and cleaning. This Sifter handles any dry material, making clean, dustproof separation with minimum of "tailings." It is available in single, double and triple turbine sizes for any capacity from a few pounds to as much as 10,000 lbs. per hour. Overall floor space for the largest size is only 6.5 sq. ft.

Write for Bulletin 52

ABBÉ ENGINEERING CO.

46 Church St., New York 7, N.Y.

When inquiring specify CP 2969 — see handy form pages 2-3

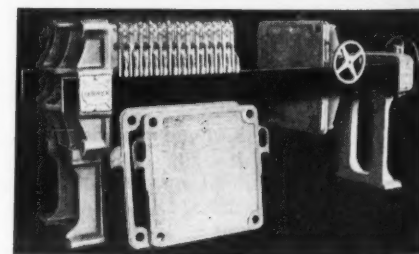


**ABBÉ
BLUTERGESS
TURBINE
SIFTER**

**30 to 10,000 lbs./hr.
Sifts 6 to 300 mesh.
Clean Separation.
Less Space and
Power. Easy to
Clean.**

**FILTRATION
THAT CUTS COSTS . . . FILTRATION
CUTS PROCESSING**

**Shriver
Stainless
Steel
Closed
Delivery
Washing
Filter
Press**



Whether you want to recover solids, clarify or decolorize liquids, extract, thicken slurry, wash and dry solids, let a Shriver Filter Press do it better at lower cost.

Shriver Filter Presses provide filtering capacity at lowest cost per square foot of filtering area.

They are versatile, easy to assemble and operate at any required temperature or pressure for any material, no matter how difficult to process. They are built of any material, in many types for any required capacity.

Write for Catalog 46.

Shriver FOR BETTER FILTRATION
FILTER PRESSES

When inquiring specify CP 2970 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

Refrigeration compressors are as important as the fisherman in bringing you fresh fish and tempting fillets. After the fish is caught, it is quickly precooled by refrigeration. Then it is stored in the ship's hold, at near-freezing temperature, and rushed to port. Here, in compressor-cooled warehouses, processors prepare it for distribution. It is stored in temperature-controlled rooms for "in-the-round" delivery. Or it is quick-frozen, cut into fillets and packaged as a choice frozen delicacy. It is delivered under refrigeration to neighborhood markets . . . sold from compressor-equipped display cases. You store it safely in your refrigerator.

Baker compressors help maintain the quality of fish from the moment it is caught until it is ready for use—in homes all over the world.

Baker

ICE MACHINE CO., Inc., South Windham, Me., and Omaha, Neb.

When inquiring specify CP 2968 . . . see information request blank, pgs. 2-3

Discussed in This Issue - - -

MACHINERY, EQUIPMENT and MATERIALS

Use this "quick-locator" when you want information on a specific type of machine, equipment or material. Everything discussed in this issue is given here, with page references. After checking the information here, if you want more data you can write manufacturer direct . . . or turn to pgs. 2-3 and use the handy "Information Request Slip." This is a special service provided by the Publisher . . . no obligation or charge, of course. The Publishers contact the proper manufacturers for you . . . information comes to you direct.



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SPECIALLY CONSTRUCTED
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Durma-Gard is a *completely new* protective apron that provides *maximum safety* against acids, alkalis, grease and oils, and effectively resists absorption, dust, powders and other occupational hazards. Yet it weighs no more than 10 ounces, thereby permitting full freedom of movement and unhampered efficiency.

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Throughout the United States and Canada are close to 500 trained West Safety Consultants. To learn more about Durma-Gard, simply call the West representative nearest you.



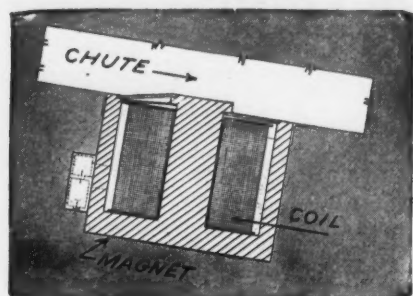
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afford EFFECTIVE, ECONOMICAL IRON REMOVAL

DINGS Double-Gap Spout Magnets are High Intensity separators for removing iron from material passing down a chute. Installed in the chute as shown in the diagram, they hold iron fast below a step in the magnet face. It is practically impossible to dislodge an accumulation of iron until the current is turned off. For automatically discharging the iron an automatic gate can be supplied as an integral part of the magnet. Here's trouble-free, positive, economical tramp iron-removal. Dings also builds a complete line of Magnetic Pulleys and Suspension Magnets. Write for details today.

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TAMP! TRUCK OVER!

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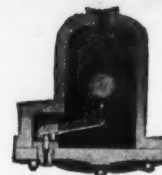


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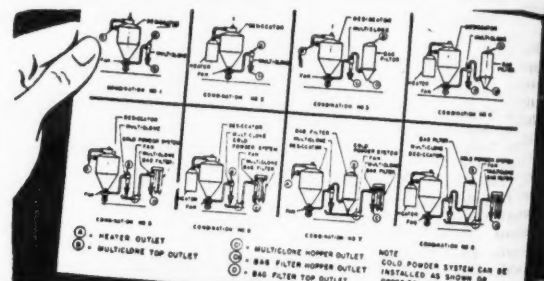
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Air Purifier

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SERVING INDUSTRY FOR MORE THAN 50 YEARS

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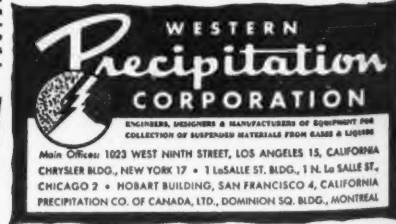
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When inquiring specify CP 2975 — see handy form pages 2-3

Drinking Water Standards

In 1942 the Public Health Service reviewed and studied the 1925 standards, and present standards were developed as a result of this work. (Summarized from "Drinking Water Quality Standards" — April issue — The Betz Indicator.)

Jersey Standard estimates that the U. S. could get all the high quality gasoline it would need for the next 3000 years from half the country's coal reserve even if there were no crude oil or natural gas reserves. (Durametallic Stuffing Box)

A Denver man has won a patent on self-sharpening shears which have an abrasive in a recess on one of the blades intended to maintain a keen edge on the other. (Nat'l. Patent Council)

Lead sheathing on electric cables and similar exposed installations can be made to last much longer by alloying it with metallic sodium. Drs. B. B. Reinitz and N. A. Zambrosky of the Okonite — Calender Cable Co. reveal that cables so protected have been in use for ten years with no sign of age hardening, corrosion, or other abnormal condition. (as reported in Amino Lab. News.—American Instrument Co., Silver Spring, Md.)

Slip-on plastic tubes in seven colors have been developed for diffusing fluorescent light. (Electric Manufacturers' Information Center, 155 East 44th St., New York)

Increase of as much as 600 per cent in the amount of heavy carbon available for the study of the secrets of life and growth has been made possible by the development of a large scale process for separating heavy carbon atoms from ordinary carbon. (USI Chemical News, 60 E. 42nd St., New York 17, N. Y.)

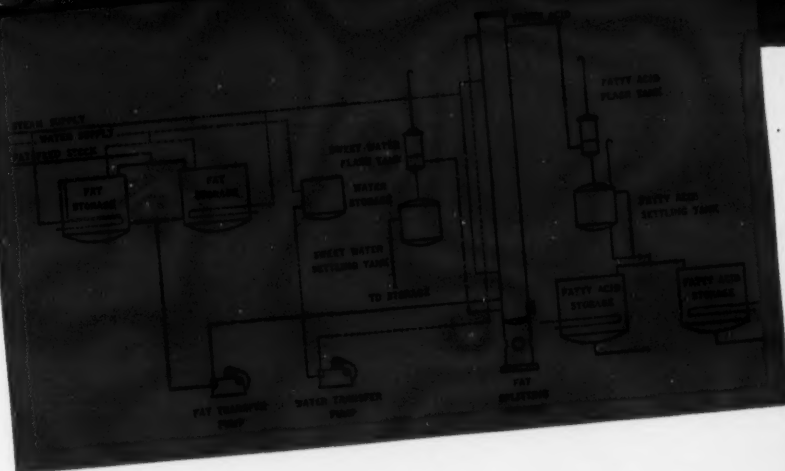
Indicative of the versatility of nickel are the results of a recent survey showing that today over 3000 alloys in current use contain from a fraction to something just less than 100% nickel.

For more information on product at right, specify CP 2976 . . . see information request blank between pages 2-3.

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